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The pipunculid flies of Israel and the Sinai

(Insecta, Diptera, Pipunculidae)

By **Marc De Meyer**

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The pipunculid fauna of Israel and the Sinai is revised. In total, 45 species are recorded from this area and 18 species are described as new to science: *Eudorylas ascitus, E. flavicrus, E. imitator, E. sinaiensis, Tomosvaryella argyrata, T. argyratoides, T. inermis, T. israelensis, T. debruyni, T. docta, T. freidbergi, T. inopinata, T. jubata, T. nodosa, T. parakuthyi, T. pusilla, T. sedomensis,* and *T. trichotibialis. Eudorylas lini* (Hardy) is considered a junior synonym of *Eudorylas confusoides* (Lamb). The female of *Cephalops conjunctivus* is recorded for the first time. Lectotypes and paralectotypes are designated for *T. helwanensis* (Collin) and *T. dentiterebra* (Collin). Identification keys for the males of the genera *Eudorylas* and *Tomosvaryella* are provided. The zoogeographical relationship of the pipunculid fauna is briefly discussed.

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Introduction

Pipunculidae are small inconspicuous flies, closely related to hoverflies (Syrphidae). They can be differentiated from the latter by the wing venation (no vena spuria) and the large compound eyes occupying most of the hemispherical head. During their larval stage they are parasitoids of Auchenorrhyncha (Homoptera).

European Pipunculidae have been the topic of recent revisions (Albrecht 1990, De Meyer 1989a, Jervis 1992). Nevertheless, the Mediterranean fauna is still poorly studied (De Meyer 1992b). Around the beginning of this century, Becker described several species from the Mediterranean area (Becker 1903, 1910, 1921). Later, only a few fragmentary works were published on limited collections of this region (Coe 1969, Collin 1948, 1958, Janssens 1955). No comprehensive study of the Israel fauna has been undertaken before. The only records are in Bodenheimer (1937) where four pipunculid species are reported: *Eudorylas trochanteratus* (Becker), *Tomosvaryella frontata* (Becker), *T. subvirescens* (Loew), under the junior synonym of *T. pilosiventris* (Becker), and *T. vicina* (Becker).

Material and methods

The present study is based on a collection from the Tel Aviv University and kindly put at my disposal by Dr. Amnon Freidberg. It comprises about 800 specimens, collected over the last 50 years (with emphasis on the last two decennia). Most material was collected in Israel, including the occupied territories of Golan Heights and West Bank, as well as from the Sinai Desert (now Egypt). Material from the former places is listed under Israel with mention of the occupied zone, while material from the Sinai is listed under Egypt.

In addition type material and other specimens for comparison were kindly put at my disposal by the following institutions: Zoologisches Museum der Humboldt Universität, Berlin, Germany (MNHU);

Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussel, Belgium (KBIN); Museum of Comparative Zoology, Cambridge, USA (MCZ); Natal Museum, Pietermaritzburg, South Africa (NMP); Bishop Museum, Honolulu, Hawaii (BPBM); Natural History Museum, London, Great Britain (NHM); Slovak National Museum Bratislava, Slovakia (SNMB); and Zoologisch Museum, Amsterdam, the Netherlands (ZMA).

Only new species are described in detail. For others, a short diagnosis is given. In case a recent revision is available, reference is made to this work: Jervis (1992) for European *Chalarus*; De Meyer (1993) for Afrotropical *Tomosvaryella* (including several species also found in Israel and the Sinai); and De Meyer (1989a) and Ackland (1993) for West Palaearctic *Cephalops*. For the identification of *Eudorylas* spp., use was made of an unpublished manuscript by Mr. M. Ackland (Oxon) which provides a key and detailed illustrations of the British species of this genus. The manuscript was kindly put at my disposal by the author and will hereafter be referred to as Ackland (MS).

List of species

The species are listed alphabetically within each genus. For the arrangement of supraspecific taxa, Rafael & De Meyer (1992) is followed.

Chalarinae

Chalarus fimbriatus Coe, 1966

Diagnosis. Frons without fronto-orbital setae. Eyes moderately convergent. Hind femora without long and curved apical seta of posterodorsal/dorsal row. Abdomen narrow; lateral fan with long bristles. All ♀ pulvilli of same length.

Material. Israel: 27 specimens from the following localities: Ani'am (occ. Golan Heights); Panyas (occ. Golan Heights); Bar'am; Dan; Har Dov; Mahanayim; Monfort; Har Hermon (occ. Golan Heights); Park HaYarden; Tarqumiya; Up. W. Faria (occ. West Bank); W. Kelt (occ. West Bank) (all TAU).

Discussion. Jervis (1992) gives a detailed redescription of this species in his revision of European *Chalarus*, with illustrations for the major characters. The species is mainly reported from West and Central Europe.

Chalarus juliae Jervis, 1992

Diagnosis. Frons without fronto-orbital setae. Eyes moderately convergent. Hind femora with long and curved apical seta of posterodorsal/dorsal row present. Abdomen narrow; lateral fan with long bristles. ♀ pulvilli on four anterior legs longer than those on hind legs. Front ommatidial facets greatly enlarged.

Material. Israel: Panyas (occ. Golan Heights), 3♀♀, 10.VII.1975; 1♂, 9.VI.1976; 1♀, 13.VI.1982; 2♂♂, Mt Hermon (occ. Golan Heights), 31.VIII.1984; 1♀, Neve Ativ, 28-29.VIII.1981, all A. Freidberg (TAU).

Discussion. This species was recently described from France (Jervis 1992). It is clearly differentiated from other *Chalarus* species by the long and curved apical seta of the posterodorsal/dorsal row on hind femora. Diagnostic characters are illustrated in Jervis (1992). The species is further reported from England, Finland, Russia and Sweden.

Chalarus spurius (Fallén, 1816)

Diagnosis. Frons without fronto-orbital setae. Eyes strongly convergent. Hind femora without long and curved apical seta of posterodorsal/dorsal row. Abdomen broad; lateral fan with shorter bristles. ♀ eyes weakly convergent. All pulvilli of same length.

Material. Israel: Panyas (occ. Golan Heights), 2♀♀, 10.VII.1975; 1♀, 28.VI.197, A. Freidberg; 1♀, Bar'am, 3 km SE, 20.VIII.1990, A. Freidberg; 1♀, Dan, 21.VII.1983, I. Nussbaum; 1♀, Tel Dan, 18.VI.1971, Kugler; 1♀, Up. W. Faria (occ. West Bank), 28.IV.1976, M. Kaplan. – Lebanon: 1♀, Mt Baruh, 9.IX.1984, I. Nussbaum (all TAU).

Discussion. Probably one of the most widespread *Chalarus* species with perhaps a cosmopolitan distribution. Jervis (1992) however points out that several of the records from regions outside Europe are questionable.

General remark. Jervis (1992) made a revision of this genus, with emphasis on the European fauna. Still, several taxonomic and identification problems are unresolved (like number of forms only partly related to described species, inadequate association of males with females). Therefore, the identifications are somewhat tentative. Further in depth study of the genus on a wider basis could cause changes. In addition 9 *Chalarus* specimens could not be identified to species level.

Verrallia aucta Fallén, 1817

Diagnosis. Vein M1+2 with appendix. One pair of ocellar bristles present. Second antennal segment with numerous dark bristly hairs below and above. All femora without warts beneath. Thorax and abdomen dark; scutellum with long dark bristles along apical margin.

Material. Israel: 1♂, Panyas, 16.IV.1992, A. Freidberg (TAU).

Discussion. *Verrallia aucta* is the only species of this genus occurring in the West Palaearctic region. It can be readily differentiated from members of the closely related genus *Jassidophaga* by the presence of an appendix in vein M1+2 in *Verrallia* (sometimes both taxa are considered as one genus, but see Rafael & De Meyer 1992). *V. aucta* is widely distributed over Europe and one of the more common pipunculid species. Genitalia of both sexes are illustrated in Coe (1966).

Pipunculinae

Cephalopsini

Cephalops conjunctivus Collin, 1958

Diagnosis. Frons completely silver-grey; third antennal segment acute, black-brown. Humerus dark; scutellum with long pale hairs. Legs mainly dark, knees yellow; hind tibiae with 3 erected anterior bristles in median part. Cross-vein r-m placed at basal third till fourth of discal cell. Abdomen shining black, elongated, with long pale hairs. Membraneous area not reaching epandrium.

The ♀ resembles the ♂ in most respects except for the following characters. Third antennal segment somewhat longer acuminate. Frons silver-grey pubescent except in upper part shining black in front of ocellar triangle. Tibiae more yellowish. Ovipositor with base broad and long, piercer shorter than base, straight (Fig. 7a).

Material. Croatia: 1♂, Dalmatia, Korcula (east end), 22-27.V.1955, R. Coe (holotype) (NHM). – Israel: 2♂♂, Hefa, 18.IV.1992, A. Freidberg; 1♂, Majdel Chams (occ. Golan Heights), 14.X.1982, F. Kaplan; Mt Meiron, 1♀, 18.IX.1976; 1♂ 1♀, 30.IX.1976; 1♀, 10.IX.1981 (all A. Freidberg); 1♀, Mt Hermon (occ. Golan Heights), 2000 m, 8.IX.1971, Kugler (all TAU).

Discussion. A detailed redescription of the ♂ holotype is given in De Meyer (1989a). The ♀ was unknown up till now. *C. conjunctivus* is clearly a mediterranean species, known from the former Yugoslavia (now Croatia), and Spain (De Meyer 1992b). It is closely related to some Afrotropical representatives of the *aeneus* group within *Cephalops* (see De Meyer 1992a).

Cephalops perspicuus (de Meijere, 1905)

Diagnosis. ♂, frons silver-grey pubescent with small shining median patch; third antennal segment short acute, yellow. Humerus dark; scutellum with short pale hairs along apical margin. Legs mainly yellow; hind tibia with few weakly suberected anterior hairs in median part. Cross-vein r-m placed

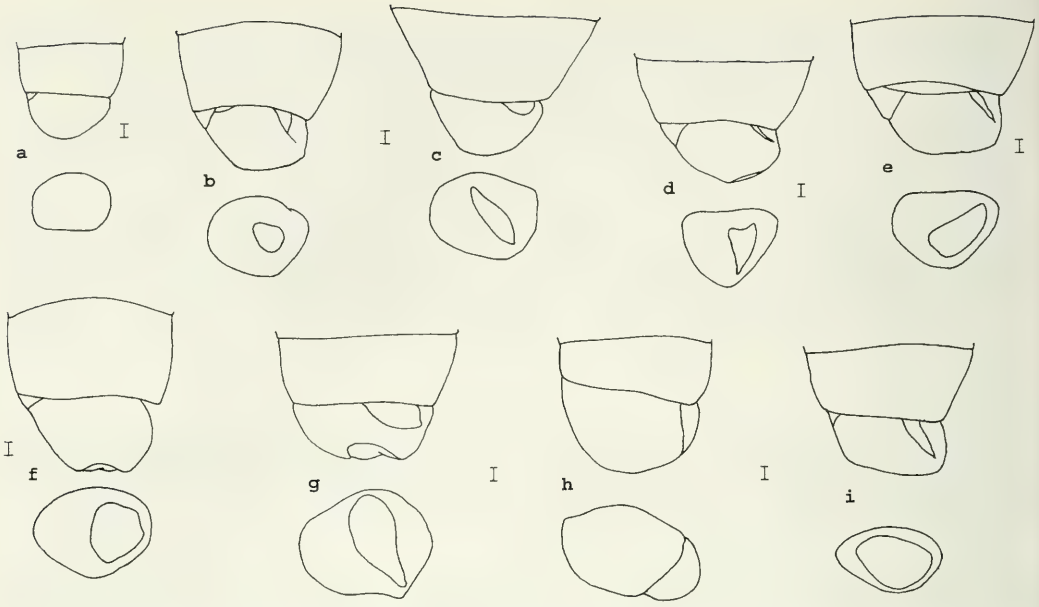

Fig. 1. ♂ tergum 5 and sternum 8 in dorsal view (above) and distal view (below). a. *Eudorylas confusoides*. b. *E. fluviatilis*. c. *E. halteratus*. d. *E. obliquus*. e. *E. longifrons*. f. *E. pannonicus*. g. *E. setosus*. h. *E. trochanteratus*. i. *E. zermattensis*. Scale 0.1 mm.

near middle of discal cell. Abdomen short, subshining black-brown, terga 2-4 with not clearly defined yellow markings along lateral margins, markings can be variable. Membraneous area reaching epandrium. ♀, frons silver-grey pubescent except for shining part in front of ocellar triangle.

Material. The Netherlands: Bussum, 1♂, 1.VIII.1902, de Meijere (holotype) (ZMA). – Israel: Herzliyya, 1♀, 10.IV.1982; 1♀, 26.V.1982, A. Freidberg (TAU).

Discussion. A detailed redescription of both sexes is given in De Meyer (1989a), with illustrations of ♂ and ♀ terminalia. Ackland (1993) gives additional and excellent diagnostic figures. *C. perspicuus* is a West-Palaearctic species, occurring all over Europe except the northern part. No records are known from the Mediterranean area. The specimens from Israel (two females) seem to correspond to this species albeit the yellow markings on the abdominal segments are quite obscure. The shape of the ovipositor however, with the long thin piercer curved upwards, is conspecific.

Eudorylini

Key to ♂♂ of *Eudorylas*

1. Abdominal sternum 8 without membraneous area (sometimes slight depression present distally but no true membraneous area) (Figs 1a, 1h, 4-6) ..... 2.
– Abdominal sternum 8 with membraneous area (Figs 1b-g, 1i, 2, 3) ..... 6.
2. Smaller species (<2.5 mm). Eyes not touching. Abdominal sternum 8 small, in dorsal view at most as long as tergum 5 (Fig. 1a). Pterostigma very obscure, seemingly missing ..... *E. confusoides*
– Larger species (>2.8 mm). Eyes touching. Abdominal sternum 8 very large, about twice as long as tergum 5 (Figs 1h, 4-6). Pterostigma always distinct ..... 3.
3. Epandrium in dorsal view clearly visible, occupying right side of sternum 8 (giving the impression of a dorsal suture on the right side of sternum, fig. 1h). Hind trochanter with dark spiny bristles ..... *E. trochanteratus*

- Epandrium not visible in dorsal view; sternum 8 without suture (Figs 4-6). Hind trochanter without spiny bristles ..... 4.

4. In dorsal view, sternum 8 truncated to right side. Inner surstylus ankyroid in lateral view (Fig. 5) ..... *E. ruralis*
- In dorsal view, sternum 8 evenly rounded distally. Inner surstylus without hook distally (Figs 4, 6) ..... 5.

5. Apical part aedeagus in ventral view slender, with subparallel lateral margins. Surstyli asymmetrical, inner surstylus basally broadened (Fig. 6) ..... *E. sinaiensis*
- Apical part aedeagus in ventral view broad, broadening basally. Surstyli subsymmetrical, inner surstylus without broadened base (Fig. 4) ..... *E. imitator*

6. Apical margin of scutellum with conspicuous long dark bristles ..... *E. setosus*
- Apical margin of scutellum without long bristles, at most short dark or palish hairs ..... 7.

7. Posteroventral spurs on four anterior tibiae absent. Legs mainly dark with only knees narrowly brownish yellow. Membraneous area running obliquely along sternum 8 (Fig. 1c) .... *E. halteratus*
- Posteroventral spurs present. Legs with at least tibiae partly yellow (except for *E. zermattensis*). Membraneous area different ..... 8.

8. Legs completely yellow ..... *E. flavicrus*
- Tibiae and/or femora at least partly darkened ..... 9.

9. Membraneous area small and elongated (Fig. 2). Base of hind femur dark ..... *E. ascitus*
- Membraneous area much larger. Base of hind femur dark or yellow ..... 10.

10. Membraneous area of roundish shape (Figs 1b,f) ..... 11.
- Membraneous area of different shape (Figs 1d,e,i) ..... 12.

11. Membraneous area larger, occupying almost half of sternum 8 in distal view (Fig. 1f). Base of hind femur dark ..... *E. pannonicus*
- Membraneous area smaller, occupying at most one fourth of width (Fig. 1b). Base of hind femur usually yellow (sometimes obscurely so) ..... *E. fluviatilis*

12. Membraneous area roughly triangular, much higher than wide (Fig. 1d). Base of hind femur yellow ..... *E. obliquus*
- Membraneous area wider, not triangular shaped. Base of hind femur dark (Figs 1e,i) ..... 13.

13. Tibiae mostly dark; hind tibia without suberected anterior bristle in median part. Membraneous area directed subventrally (Fig. 1i) ..... *E. zermattensis*
- Tibiae only darkened medially, margins yellow; hind tibia with suberected anterior bristle in median part. Membraneous area directed to right side of sternum 8 (Fig. 1e) ..... *E. longifrons*

Eudorylas ascitus, spec. nov.

Fig. 2

Types. Holotype: ♂, Israel, Haifa, 1.X.1978, A. Freidberg (TAU). – Paratype: 1♂, Israel, Nahal, Deragot, 25.III.1987, F. Kaplan (TAU).

Description

♂. Body length: 2.99-3.20 mm. Wing length: 3.06-3.13 mm.

Head. Third antennal segment acuminate, yellow-brown. Eyes. touching for distance equal to twice ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput greyish pubescent, upper part greyish-brown.

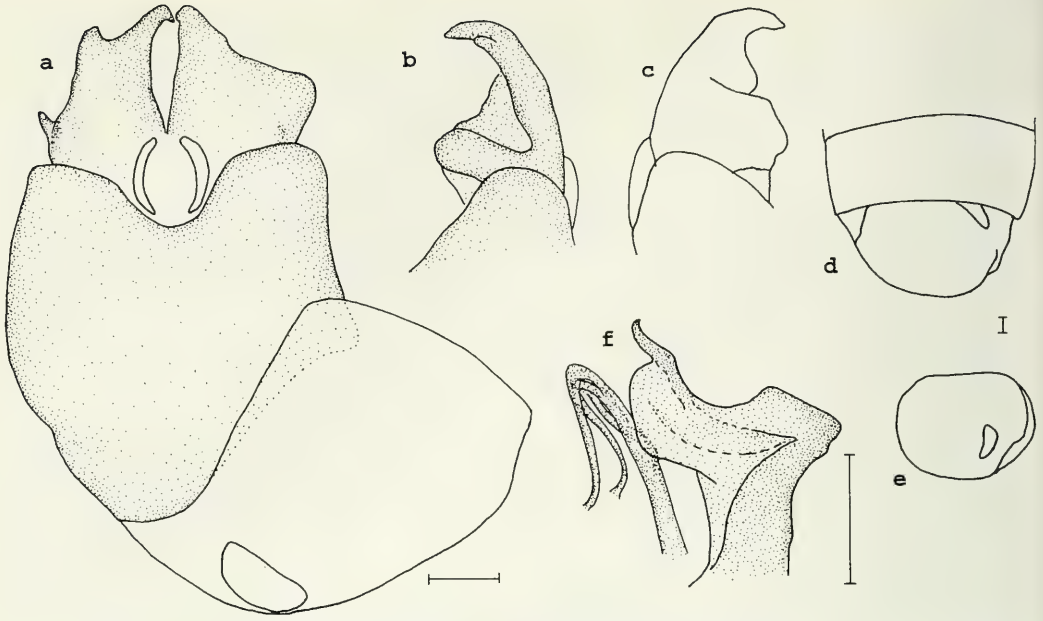

Fig. 2. *Eudorylas acitus*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral. Scale 0.1 mm.

Thorax. Humerus yellowish. Mesonotum subshining black-brown; brownish dusted, anterior part greyish dusting. Scutellum subshining black, greyish dusted; on disc brownish. Halter yellow-brown. Wing: Fourth costal section about as long as third costal section. Cross-vein r-m at basal third of discal cell. Legs: Femora dark, apical margin narrowly yellow. Tibiae yellow, at least on dorsal part; more or less darkened in median part, especially in hind leg. Tarsal segments yellow to yellowish brown, last tarsal segment darker. Anterior four tibiae with apical spur present.

Abdomen. Lateral fan with 1-2 dark bristly hairs. Abdominal terga subshining black-brown, brownish dusted, tergum 1 greyish dusted. Lateral margins also greyish dusted, extending towards middle posteriorly. Sternum 8 subshining black-brown, greyish brown dusted. In dorsal view, sternum 8 slightly longer than tergum 5. Membraneous area small. Terminalia fig. 2.

♀ unknown.

Etymology. From the Latin 'ascitus' meaning alien or foreign and referring to the unknown relationship with other European *Eudorylas* species.

Discussion. This species has yellow humeri and the base of the femora dark. It does not seem to show a close relationship with any of the other *Eudorylas* species found in Israel or Europe. Especially the enlarged and twisted ejaculatory duct is unlike any of those found in European representatives of the genus.

Eudorylas confusoides (Lamb, 1922)

Eudorylas lini (Hardy, 1971) (**syn.nov.**).

Diagnosis. ♂ eyes not touching. Humerus dark, above slightly paler than centre mesonotum. Pterostigma barely coloured except extreme tip; cross-vein r-m at basal fifth to sixth of discal cell. Femora dark at base. Membraneous area absent. ♀ frons broad and shining black, except above antennae silver-grey pubescent. Pulvilli about as long as last tarsal segment. ♂ terminalia Fig. 1a.

Material. Seychelles: 1♂, Mahe, near Morne Blanc (syntype *E. confusoides*) (NHM). – Philippines: 2♂♂ 1♀, Palawan, 13 km N of Puerto Princesa (♂ holotype, ♀ allotype and ♂ paratype *E. lini*) (BPBM). – Taiwan: 2♂♂, N. Taiwan,

Taipei (paratypes) (BPBM). – La Reunion: 5 specimens from Ligne Paradis, St. Pierre, reared from *Cicadulina mbila*, B. Reynaud (KBIN). – Israel: 19 specimens from the following localities: Elot; Hadera; Herzliyya; Jeruzalem, Mt Scopus; Kfar Rugin; Kiryat Gat; Yasur (TAU).

Discussion. Lamb originally placed this species in *Dorylomorpha* because of the obscure pterostigma and the position of the cross-vein r-m. Albrecht (1990) in his revision placed the species in *Eudorylas* and suggested it is related to *E. fusculus*. Both are indeed small pipunculids without a membraneous area on the abdominal 8th sternum. The surstyli are somewhat similar except that the outer surstylus in *confusoides* is much more elongated. The ejaculatory duct structure is however distinctly different.

Albrecht (1990) also placed the Oriental *E. lini* (Hardy, 1971) under the genus *Eudorylas*. Study of type material of both species has shown them to be synonymous.

I am not sure of the generic position of this species. The shape of the discal cell could suggest a relation with the genus *Microcephalops* De Meyer (1989b) but other characteristics for this genus (like the swollen frons and narrowed face) are missing. Since *E. confusoides* and *E. lini* have shown to be identical, the distribution makes more sense. It seems to be a mainly Oriental species, also occurring on islands in the Indian Ocean and now reported from Israel. So far, it has not been found on the African mainland.

The author recently received material from la Reunion where the species was found in rearing cages of *Cicadulina mbila* (Cicadellidae). This cicadellid, the transmitter of Maize Streak Virus, is also known from mainland Africa (Reynaud 1988). In addition the species is reported from paddy fields in the Oriental region (Hardy 1971, Yano et al. 1984) and seems to be associated with the rice leafhopper (*Nephotettix*).

Eudorylas flavicrus, spec. nov.

Fig. 3

Types. Holotype: ♂, Israel, Elat, 4.V.1986, F. Kaplan (TAU).

Description

♂. Body length: 3.5 mm. Wing length: 4.0 mm.

Head. Third antennal segment long acute, yellow. Eyes touching for distance equal to three times ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput greyish pubescent, upper part greyish-brown.

Thorax. Humerus yellow. Mesonotum mainly brownish dusted, anterior part narrowly greyish dusted. Scutellum with greyish brown dusting. Halter yellow. Wing: Fourth costal section about 1.5 times as long as third costal section. Cross-vein r-m at basal two-fifths of discal cell. Legs: mainly yellow; femora darkened in median part, especially dorsally; last tarsal segment dark. Anterior four tibiae with apical spur present.

Abdomen. Lateral fan with 2-3 dark bristles. Abdominal terga weakly subshining black-brown; brownish dusted, tergum 1 wholly and lateral margins of other terga greyish dusted, posteriorly extending towards middle. In dorsal view, sternum 8 about as long as tergum 5. In distal view, membraneous area very small, elongated. Terminalia Fig. 3.

♀ unknown.

Etymology. Refers to the almost completely yellow legs.

Discussion. *E. flavicrus*, spec. nov. clearly belongs to the *Eudorylas* species group with humeri and base of the femora yellow. The small size of the membraneous area, and the shape of the surstyli are somewhat similar to those found in the European *E. subterminalis* Collin, but the apical part of the aedeagus is clearly differently formed.

Eudorylas fluviatilis (Becker, 1900)

Diagnosis. Humerus yellow. Base of hind femur yellow, sometimes not distinctly so. Tibiae mainly yellow. Abdominal sternum 8 about as long as tergum 5; membraneous area small and roundish. ♀ anterior tarsi with pulvilli very long (three times as long as last tarsal segment). Frons completely

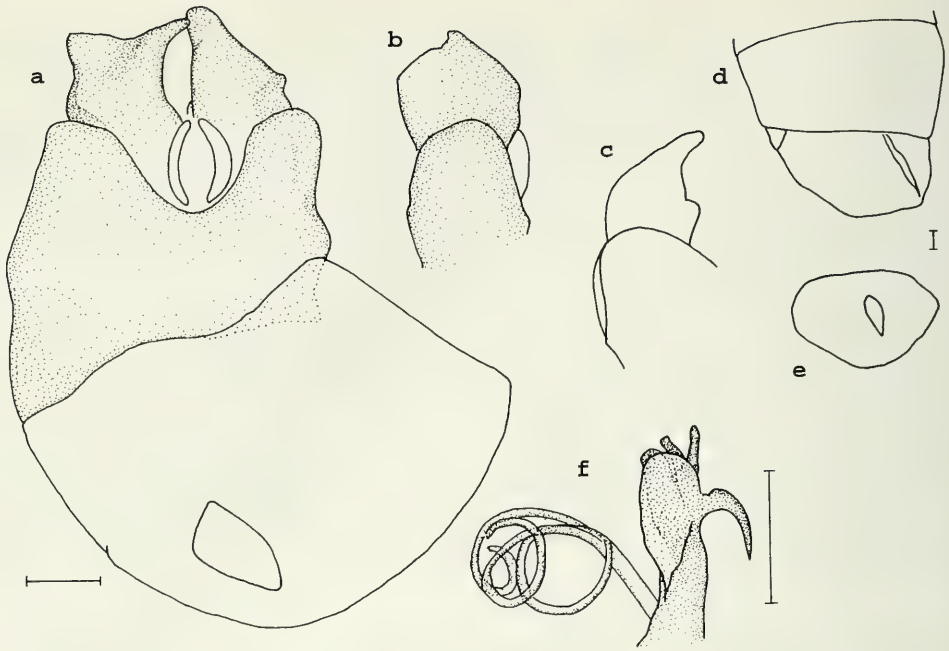

Fig. 3. *Eudorylas flavicrus*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral. Scale 0.1 mm.

greyish pubescent, although thinly so in front of ocellar triangle. ♂ terminalia Fig. 1b.

Material. Israel: 149 specimens from the following localities: Ashdod; Panyas (occ. Golan Heights); Bet Dagan; Har Karmel; Jisr Damiya; Dor; Ga'ash; Haifa; Mt Hermon (occ. Golan Heights); Hefa; Herzliyya; Kalia; Kerem Shalom; Ma'agam Michael; Oamiya; Pal machim; Tel Aviv; Wadi Kabala, Judean Hills.

Discussion. Clearly a species with Mediterranean and western Asian distribution. It is reported from the Canary Islands, Egypt, and the South European Territory of the former USSR (Tanasijtshuk 1988). It is unknown from any other region in the West-Palaearctic and does not seem to be related to any of the other European *Eudorylas* species.

Eudorylas halteratus (Meigen, 1838)

Diagnosis. Humerus black. Third antennal segment short acute, black. Legs mainly black, with knees narrowly brownish yellow. Four anterior tibiae without posteroventral spur apically. Abdomen dark, lateral margins greyish dusted. Membraneous area narrow and elongated. Terminalia Fig 1c.

Material. Israel: 1♂, Mt Hermon (occ. Golan Heights), 1700 m, 7.VII.1987, A. Freidberg (TAU).

Discussion. *Eudorylas halteratus* is one of the two European *Eudorylas* species without posteroventral spurs. It seems to be uncommon but widespread in West and Central Europe (maybe also found in Sweden).

Eudorylas imitator, spec. nov.

Figs 4, 7b

Types. Holotype: ♂, Israel, Tirat Zvi, 11.V.1984, A. Freidberg (TAU). – Allotype: ♀, same locality and date as holotype (TAU). – Paratypes: Israel: 1♂, same locality and date as holotype; Mt Hermon (occ. Golan Heights): 1♂, 2.VIII.1982, F. Kaplan; 1♂, 18.VII.1972, M. Kaplan; 1♀, 7.VII.1987, F. Kaplan; 1♀, 13.VIII.1973, A. Freidberg; 1♀, 28.VI.1971, Kugler; 1♂ 2♀♀, Panyas (occ. Golan Heights), 13.VI.19 82, A. Freidberg; 1♂, Nahal Tut, 18.V.1982,

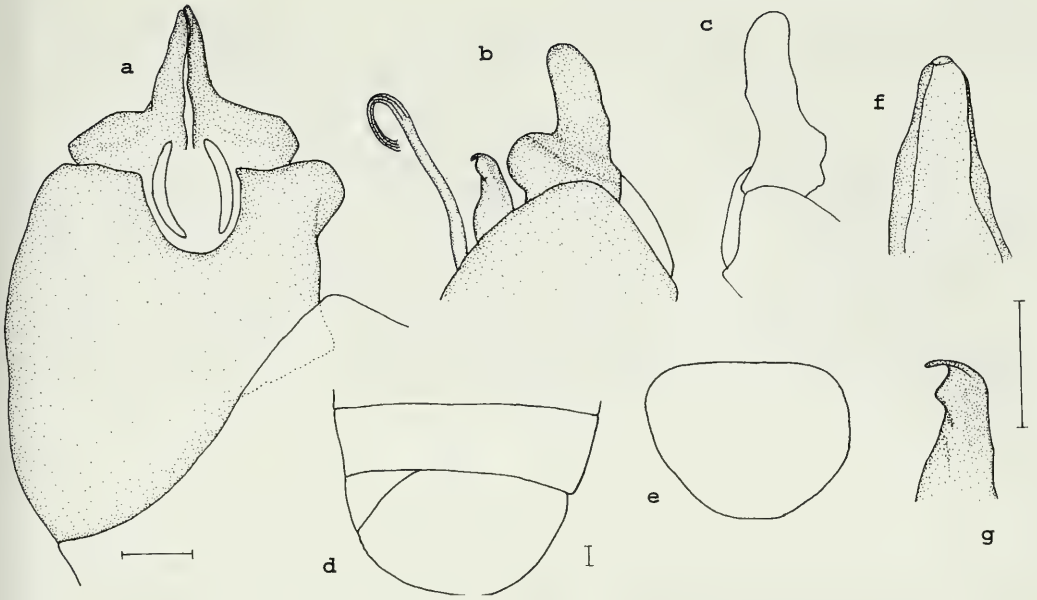

Fig. 4. *Eudorylas imitator*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus with aedeagus and ejaculatory duct, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus ventral; g. aedeagus, lateral. Scale 0.1 mm.

A. Freidberg; 1♂, Hazeva, 21.IV.1981, F. Kaplan; 1♂, Jeruzalem, Mt Scopus, 1.IX.1930, O. Theodor; 1♂, Hamat Gader, 1.VI.1986, A. Freidberg; 1♂, Sderot, 27.II.1974, A. Freidberg; 1♂, Qusbiye, 14.III.1975, A. Freidberg; 1♂, Yizre'el, 7.VII.1973, M. Kaplan (all TAU).

Additional Material. One ♂ specimen of unknown locality also belongs here. It is not included in the type series. Type material returned to TAU, except 6 paratypes deposited in collection KBIN.

Description

Body length: 3.06-3.88 mm. Wing length: 3.26-4.08 mm.

♂. Head. Third antennal segment acuminate; brownish, with apical tip whitish. Eyes touching for distance equal to twice ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput greyish pubescent, upper part less densely greyish-brown.

Thorax. Humerus pale yellowish. Mesonotum weakly subshining black-brown; mainly brownish dusted, anterior part more greyish dusting. Scutellum subshining black, greyish brown dusted; along apical margin with short dark hairs. Halter yellow-brown. Wing: Fourth costal section about as long as third costal section. Cross-vein r-m at basal third of discal cell. Legs: Dark, with knees and basal third of tibiae yellow. Anterior four tibiae with apical spur present. Sometimes legs more yellowish brown in general colour.

Abdomen. Lateral fan with 2-3 dark bristles. Abdominal terga subshining black-brown; brownish dusted, tergum 1 wholly and lateral margins of other terga extensively greyish dusted especially tergum 5. Sternum 8 mainly subshining black-brown, weakly greyish brown dusted. In dorsal view, about twice as long as tergum 5; evenly rounded apically. Membraneous area absent. Terminalia Fig. 4.

♀♀ do not seem to be different from those of *E. ruralis*. Only ♀ specimens that were associated with ♂♂, are included in the type series. Others are listed separately under *E. ruralis* (see below). As ♂ except for following characters. Third antennal segment longer acuminate, more palish white along apical margin. Frons silver-grey dusted above antennae, gradually becoming more shining black upwards. Pulvilli slightly longer than last tarsal segment. Terminalia Fig. 7b.

Etymology. Refers to the similarity with *E. ruralis*.

Discussion. This new species belongs to a complex of three species: *E. ruralis*, *E. sinaiensis*, spec. nov., and *E. imitator*, spec. nov. It shows the rounded apical margin of eight sternum like in

E. sinaiensis but the apical part of the aedeagus is broader in ventral view and the shape of the surstyli is slightly different. As indicated above, the ♀♀ cannot be distinguished from those of *E. ruralis*.

Eudorylas longifrons Coe, 1966

Diagnosis. Third antennal segment brownish. Humerus yellow. Base of hind femur dark. Tibiae mainly yellow, with median bristle. Membraneous area large, narrowing towards right margin. ♂ terminalia Fig. 1e.

Material. Israel: 1♂, Har Karmel, 27.V.1974, A. Freidberg; 3♂♂, W. Nemrod, 10.VI.1976, A. Freidberg (TAU).

Discussion. This is an uncommon species of which the distribution is not well known. So far, it is only reported from Belgium, the former Czechoslovakia, and Great Britain. Possibly it is much more widespread. The aedeagus in the Israel specimens is slightly different from the one illustrated by Ackland (MS, based on British material) by being much longer. Otherwise no differences could be detected.

Eudorylas obliquus Coe, 1966

Diagnosis. Humerus yellow. Base of hind femur yellow. Tibiae mainly yellow. Membraneous area roughly triangular, higher than wide and confined to right side of abdominal sternum 8. ♀ ovipositor base with unequal lobes, right one being larger than the left. ♂ terminalia Fig. 1d.

Material. Israel: 58 specimens from the following localities: Panyas (occ. Golan Heights); Bar'am; Har Karmel; Daliyya; En Te'o; Givat Brenner; Herzliyya; Kiryat Gat; Lahav; Mahamayim; K. Meiron; Nahal Qumeran; K. Nahum; Nashonim; Park HaYarden; Ramat Chen; Lower Nahal Amud, Zomet Koah; Up. N. Amud.

Discussion. This species is mainly reported from western Europe. In addition, records are known from the former Czechoslovakia, and Italy (De Meyer 1992b). The species is very similar to *E. jenkinsoni* Coe but can be differentiated by small differences in the ♂ genitalia (Ackland, MS).

Eudorylas pannonicus (Becker, 1898)

Diagnosis. Humerus yellow. Base of hind femur dark. Tibiae mainly dark, at least in median part. Membraneous area medium size, roundish. ♀ body mainly greyish dusted. Tarsal segments with long conspicuous black bristles. ♂ terminalia Fig. 1f.

Material. Israel: 1♂, Nahal Qetura, 2.V.1986, A. Freidberg; 1♂, Ein Mur, 30.X.1984, A. Freidberg; 1♂, Palestine, Gwulot, 21.X.1954, O. Theodor; 1♀, Ein Gedi, 20.I.1976, Kugler; 1♀, Ein Feshkha, 22.XI.1976, A. Freidberg; 1♀, Neot Hakikaz, 20.V.1974, A. Freidberg; 1♀, West Negev, En HaMe'ara [small spring near Har Loz, Central Negev, according to A. Freidberg pers. comm.], 24.X.1984, A. Freidberg. – Egypt: 1♂ 1♀, Sinai, Qzaima, 1.VII.1972, A. Freidberg (all TAU).

Discussion. This species is mainly recorded from the Mediterranean region and Central Europe (De Meyer 1992b). The females can be readily recognized from any other *Eudorylas* by the long conspicuous bristles on the tarsal segments. The males have a simple, subsymmetrical pair of surstyli, unlike any of the other *Eudorylas*.

Eudorylas ruralis (Meigen, 1824)

Diagnosis. Head: third antennal segment brown, acuminate. Legs dark with basal third of tibiae yellow. Scutellum greyish brown dusted; along apical margin with short pale hairs. Sternum 8 without membraneous area, not evenly rounded, directed to right side. ♀ third antennal segment longer acuminate, with apical margin whitish. Frons silver-grey above antennae till small supraantennal protuberance; upper part gradually more shining black. ♂ terminalia Fig. 5.

Material. 32 specimens from the following localities: Israel: Bar'am; Haifa; Har Meron; Herzliyya; Mt Meiron; Tel Aviv. – Egypt: Sinai, Qzaima (all TAU).

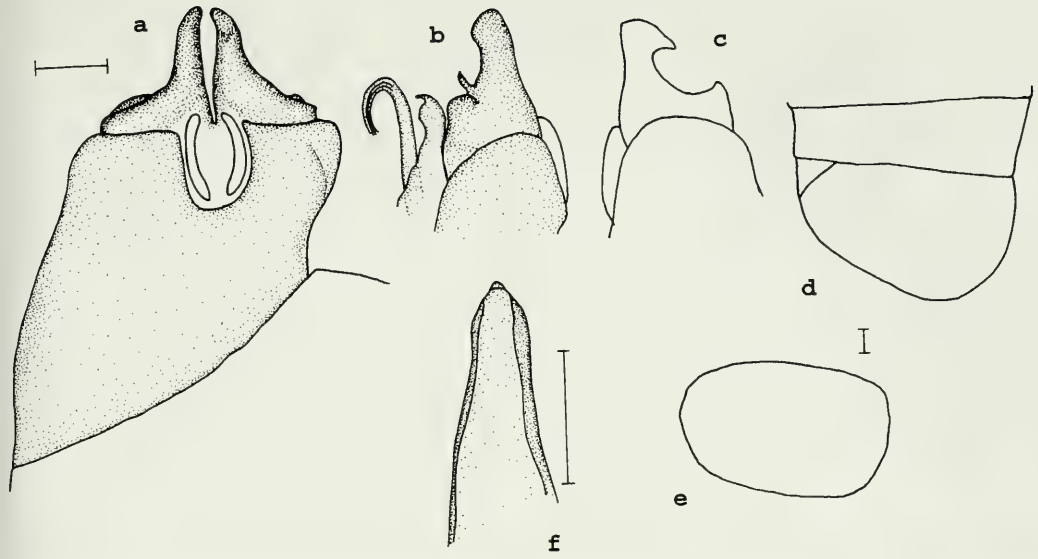

Fig. 5. *Eudorylas ruralis*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus with aedeagus and ejaculatory duct, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus, ventral. Scale 0.1 mm.

In addition, the following 11♀♀ were not associated with any males. Since the females of *E. ruralis* and *E. imitator*, spec. nov., cannot be differentiated, they are listed here provisionally as *E. ruralis* s.l.: Israel: Park HaYarden, 1♀, 16.XI.1982, I. Yarom; 1♀, 20.VI.1982, A. Freidberg; 1♀, Hefa, 18.IV.1992, A. Freidberg; 1♀, Mt Meron, 10.VI.1987, Yarom & Zvik; 1♀, Nov (occ. Golan Heights), 13.V.1981, A. Freidberg; Ein Gedi, 1♀, 5.III.1981, A. Freidberg; 3♀♀, 13.VII.1987, Yoram & Zvik; 1♀, Ze'elim, 16.VI.1986, F. Kaplan; 1♀, Zelat, 18.VII.1970, Kugler (all TAU).

Discussion. *E. ruralis* can be differentiated from other *Eudorylas* species by the enlarged eight sternum without membraneous area. However, Israeli material comprised two other, closely related species with the same characteristic: *E. sinaiensis*, spec. nov. and *E. imitator*, spec. nov. *E. ruralis* can be differentiated by the hooks on the male surstyli and the shape of the eight sternum. It is a fairly common species, widespread throughout Europe except northern Europe (absent in Fennoscandia and Denmark).

Eudorylas setosus (Becker, 1908)

Diagnosis. Humerus yellow. Scutellum with long black bristles along apical margin. Base of hind femur black. Tibiae mainly darkish. Abdomen black dusted with silvery bands posteriorly. ♀ third antennal segment long filiform. Frons with long median shining black line extending from ocellar triangle till supraantennal tubercle. Tibia less dark. Abdomen greyish brown dusted with lateral margin extensively greyish. ♂ terminalia Fig. 1g.

Material. Israel: Herzliyya, 1♂, 27.VI.1982; 1♀, 10.VII.1982; 1♀, 11.VII.1982; 1♀, 14.VII.1982; 1♀, 18.VII.1982, all A. Freidberg (TAU).

Discussion. *Eudorylas setosus* can be differentiated from any other European *Eudorylas* spp. by the long black bristles along the apical margin of the scutellum. The species was described originally from the Canary Islands and also seems to occur in Spain (Ackland pers. comm.). The drawings of ♂ terminalia, sent to me by Michael Ackland, and based on his specimen from Spain, show however a slightly different shape of surstyli from the specimens of Israel.

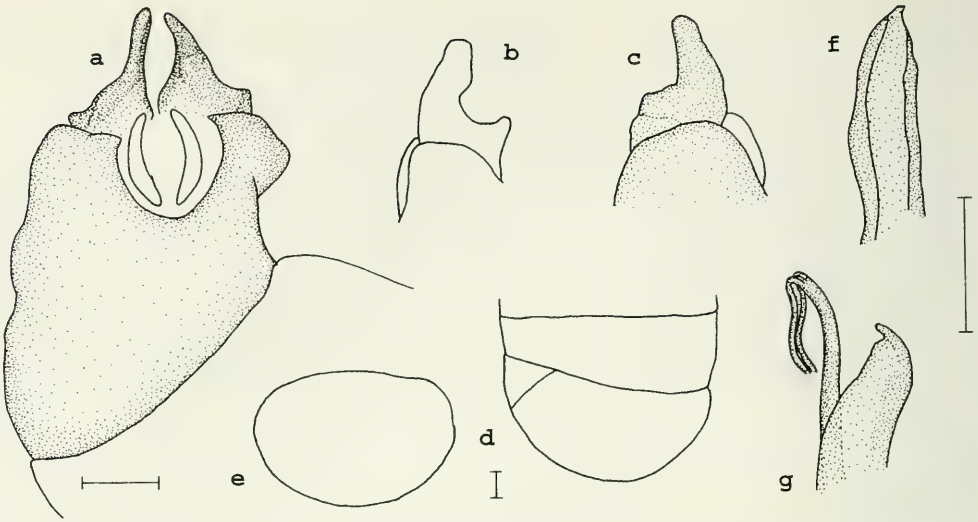

Fig. 6. *Eudorylas sinaiensis*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus, ventral; g. aedeagus and ejaculatory duct, lateral. Scale 0.1 mm.

Eudorylas sinaiensis, spec. nov.

Figs 6, 7c

Types. Holotype: ♂, Egypt, Sinai, Ofira, 22.III.1981, A. Freidberg (TAU). – Allotype: ♀, same locality and date as holotype. – Paratypes: 8♂♂, 3♀♀, same locality and date as holotype; 1♂, Sinai, Wadi Kid, 13.III.1982, A. Freidberg; 1♂, Sinai, Ein Qsaib, 15.III.1982, A. Freidberg; 2♀♀, Sinai, 20 km N Dahab, 12.III.1982, A. Freidberg (TAU). Type material returned to TAU, except 4 paratypes deposited in collection KBIN.

Description

Body length: 2.86-3.19 mm. Wing length: 3.26-3.74 mm.

♂. Head. Third antennal segment long acuminate, yellow-brown. Eyes touching for distance equal to twice ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput greyish pubescent, upper part greyish-brown.

Thorax. Humerus pale yellowish. Mesonotum weakly subshining black-brown; mainly brownish dusted, anterior part more greyish dusting. Scutellum subshining black, greyish brown dusted; along apical margin with short pale hairs. Halter yellow-brown. Wing: Fourth costal section about as long as third costal section. Cross-vein r-m at basal third of discal cell. Legs: Femora dark, apical margin narrowly yellow. Tibiae yellow, slightly darkened in median part, especially hind tibia. Tarsal segments yellow to yellowish brown. Anterior four tibiae with apical spur present.

Abdomen. Lateral fan with 2-5 dark bristles. Abdominal terga subshining black- brown, brownish dusted, tergum 1 wholly and lateral margins of other terga extensively greyish dusted. Sternum 8 mainly subshining black-brown; weakly greyish brown dusted. In dorsal view, about twice as long as tergum 5; evenly rounded apically. Membraneous area absent. Terminalia Fig. 6.

♀. As ♂ except for following characters. Third antennal segment longer acuminate to filiform, pale yellow. Frons completely silver-grey dusted, except in front of ocellar triangle shining black. Sometimes legs more yellowish and abdomen more extensively greyish dusted. Pulvilli longer than last tarsal segment. Terminalia Fig. 7c.

Etymology. Referring to the type locality, the Sinai desert.

Discussion. As mentioned above, this new species belongs to a complex, together with *E. ruralis* and *E. imitator*. Like *E. imitator*, the apical margin of the eight sternum is rounded. Is can be differentiated from *E. imitator* by the shape of the apical part of aedeagus (slender in ventral view) and the more

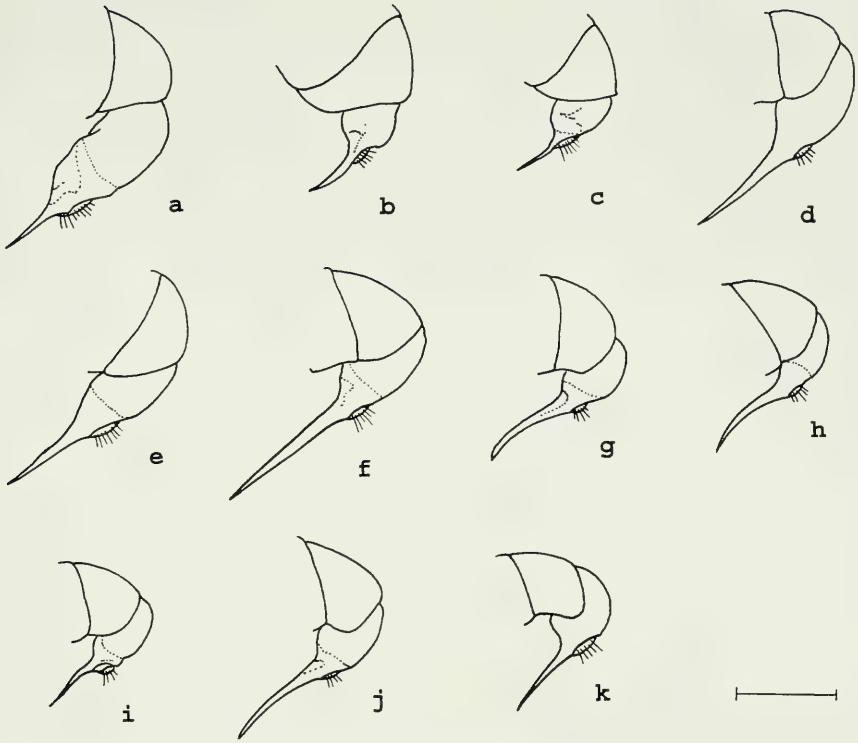

Fig. 7. ♂ terminalia, lateral view. a. *Cephalops conjunctivus*. b. *Eudorylas imitator*. c. *E. sinaiensis*. d. *Tomosvaryella argyratoides*. e. *T. debruyni*. f. *T. docta*. g. *T. freidbergi*. h. *T. israelensis*. i. *T. nodosa*. j. *T. parakuthyi*. k. *T. pusilla*. Scale 0.5 mm.

yellow tibiae. The ♀ can be differentiated from the other two, by the more yellow tibiae and the frons more extensively greyish dusted.

Eudorylas trochanteratus (Becker, 1900)

Diagnosis. Third antennal segment yellow. Humerus yellow. Base of hind femur black. Tibiae yellow with median part darkish. Hind trochanter covered with short black spiny bristles. Abdominal sternum 8 large, swollen, without membraneous area. In dorsal view, epandrium occupying right side of sternum 8. ♀ frons shining black except above antenna. Hind trochanter without spiny bristles. ♂ terminalia Fig. 1h.

Material. Israel: 12 specimens from the following localities: Sedom; Bet She'an Valley; Be'er Sheva; Shivta; N. Bsor; Ze'elim (all TAU).

Discussion. *Eudorylas trochanteratus* resembles *E. ruralis* somewhat, but can be differentiated by the epandrium occupying the right side of the sternum 8 in dorsal view and by the spiny bristles on the hind trochanter. Also, the ♂ terminalia are strongly different. Two ♀ specimens apparently belong to this species (one specimen associated with ♂♂) They are very similar to ♀♀ of the *E. ruralis* complex except for some minor differences in the shape of the ovipositor. The species was described originally from Egypt. Bodenheimer (1937) reported it from Palestina. Albrecht in Hackmann (1980) mentions it from Finland but this seems questionable.

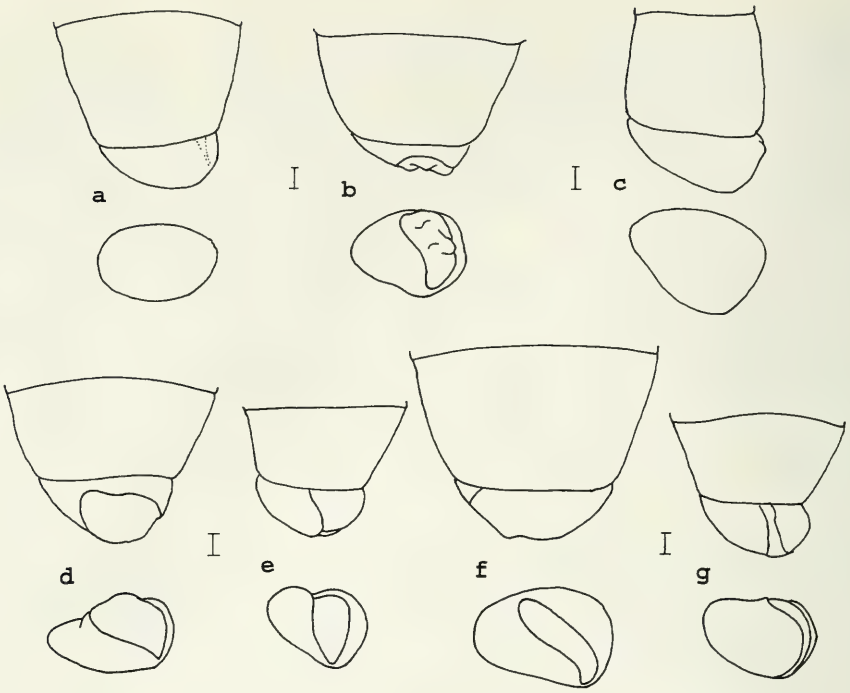

Fig. 8. ♂ tergum 5 and sternum 8 in dorsal view (above) and distal view (below). a. *Tomosvaryella frontata*. b. *T. geniculata*. c. *T. helwanensis*. d. *T. kuthyi*. e. *T. minima*. f. *T. mutata*. g. *T. sylvatica*. Scale 0.1 mm.

Eudorylas zermattensis (Becker, 1898)

Diagnosis. Third antennal segment brown acuminate. Humerus yellow. Legs black, only knees yellow, tarsal segments yellow-brown below. Abdomen subshining black-brown; weakly brownish dusted, lateral margins more greyish dusted, 2nd tergum more densely so. ♂ terminalia Fig. 1i.

Material. Israel: 11 specimens from the following localities: 'Ajav'; Ein Gedi; Herzliyya; Jeruzalem, Mt Scopus; Kalia; Ma'ale Adumim; Majdel Chams (occ. Golan Heights); N. Poleg; Nu'eima; Ze'elim.

Discussion. *Eudorylas zermattensis* is widespread over Europe (De Meyer 1992b) and also reported from Uzbekistan (Kozánek 1988). The apical tip of the aedeagus differs slightly from that in West European material from France (KBIN) and Great Britain (Ackland, MS). I consider the material however conspecific.

Tomosvaryellini

Key to ♂♂ of *Tomosvaryella*

1. Hind trochanter with protuberance ..... 2.
– Hind trochanter smooth ..... 6.
2. Abdominal terga with conspicuous bristly pilosity. Protuberance of hind trochanter apically covered with short hairs ..... 3.
– Abdominal terga without conspicuous bristly pilosity, at most with scatered hairs. Protuberance without hairs apically ..... 5.

3. Protuberance of hind trochanter keel like, with scattered hairs. Membraneous area on sternum 8 directed distally ..... *T. vicina*

– Protuberance of different shape, only with short but dense pilosity apically. Membraneous area directed to right side of sternum 8 ..... 4.

4. Hind protuberance of trapezoid shape ..... *T. subvirescens*

– Hind protuberance of triangular shape ..... *T. tecta*

5. Abdominal sterna with pairs of knobby protuberances. Sternum 8 without dorsal suture (Fig. 18) ..... *T. nodosa*

– Abdominal sterna without knobby protuberances. Sternum 8 with dorsal suture (Fig. 17) ..... *T. jubata*

6. Hind tibia dorsally with conspicuous comb of long dark bristles at apical end (Fig. 22) ..... *T. trichotibialis*

– Hind tibia without such comb, at most dispersed bristly hairs apically ..... 7.

7. Abdominal sterna covered with velvet like pile. Sternum 8 very short (Fig. 8b) ..... *T. geniculata*

– Abdominal sterna without such pile ..... 8.

8. Halter black ..... *T. nigronitida*

– Halter yellowish, at most yellowish-brown but never black ..... 9.

9. Frons with conspicuous hornlike processus in the middle (Fig. 11) ..... *T. debruyni*

– Frons normal, without processus ..... 10.

10. Occiput with anterior margin broadly and conspicuously silvery (above sometimes not so clear). First two abdominal terga with conspicuous dense silver dusting dorsally ..... 11.

– Occiput silver-grey or greyish brown, never with distinct silvery collar along anterior margin. First two abdominal terga at most with greyish patches, never conspicuous silvery (except for *T. docta* when viewed obliquely from front) ..... 12.

11. Hind femur ventrally with long pale hairs, longest hairs at least as long as width of femur ..... *T. argyrata*

– Hind femur without long hairs ..... *T. argyratoides*

12. Abdominal sternum 8 without membraneous area (Figs 8a,c) ..... 13.

– Abdominal sternum 8 with membraneous area (although sometimes small and slitlike) (Figs 8f,g) ..... 14.

13. Eyes not touching, narrowly separated ..... *T. frontata*

(*Eudorylas confusoides* might also key out here because the pterostigma is not distinctly coloured. It can be differentiated by the position of the cross-vein being at the basal fifth or sixth of discal cell and the absence of conspicuous pilosity on the abdominal terga).

– Eyes touching ..... *T. helwanensis*

14. Abdominal terga with conspicuous pilosity ..... *T. inermis*

– Abdominal terga without conspicuous pilosity ..... 15.

15. Eyes not touching ..... *T. sedomensis*

– Eyes touching ..... 16.

16. Membraneous area slit like and at right side of sternum 8 (Fig. 8g) ..... *T. sylvatica*

– Membraneous area not slit like (although sometimes narrow but elongated, like in *mutata* Fig. 8f) ..... 17.

17. Hind femur with posteroventral row of longer hairs ..... 18.

– Hind femur without posteroventral row of longer hairs ..... 21.

18. Mesonotum completely greyish dusted ..... *T. parakuthyi*
– Mesonotum mainly brownish dusted, only anteriorly more or less broadly greyish dusting ... 19.
19. Larger species. Membraneous area occupying at least half of sternum 8 and directed more postero-dorsally (Fig. 8d) ..... *T. kuthyi*
– Smaller species. Membraneous area occupying less than half of sternum 8 and directed more distally (Figs 13, 16) ..... 20.
20. Sternum 8 without dorsal suture (Fig. 13). Surstyli very slender and elongated ..... *T. freidbergi*
– Sternum 8 with dorsal suture (Fig. 16). Surstyli more robust, distinctly hooked apically ..... *T. israelensis*
21. Sternum 8 with dorsal suture (Figs 8e, 20) ..... 22.
– Sternum 8 without dorsal suture (Figs 8f, 12, 15) ..... 23.
22. Mesonotum entirely greyish-brown dusted, only between humeri more greyish. Fourth costal section about as long as third costal section (never more than twice as long) ..... *T. pusilla*
– Mesonotum with anterior third greyish dusted, in contrast with remainder which is brownish dusted. Fourth costal section more than twice as long as third costal section ..... *T. minima*
23. Membraneous area elongated and narrow, running obliquely along sternum 8 in distal view (Fig. 8f) ..... *T. ?mutata*
– Membraneous area large and more oval shaped (Figs 12, 15) ..... 24.
24. Membraneous area occupying half of sternum 8 (Fig. 12). Mesonotum mainly shining black except anterior and posterior margins silver-grey dusted ..... *T. docta*
– Membraneous area occupying less than half of sternum 8 (Fig. 15). Mesonotum mainly greyish brown dusted ..... *T. inopinata*

Tomosvaryella argyrata, spec. nov.

Fig. 9

Types. Holotype: ♂, Israel, Shivta, 18.III.1977, A. Freidberg (TAU). – Paratype: 1♂, Israel, Mt Hermon (occ. Golan Heights), 800 m, 23.IV.1973, D. Furth (TAU).

Description

♂. Body length: 3.26-3.54 mm. Wing length: 3.06-3.20 mm.

Head. Third antennal segment acuminate, brownish. Eyes touching for distance equal to ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput conspicuously silvery, upper part posteriorly more subshining black.

Thorax. Humerus pale yellowish. Mesonotum shining black; anterior ⅓ and posterior margin in front of scutellum with dense silvery dusting. Scutellum silvery dusting on anterior part of disc, otherwise shining black. Halter pale brownish. Wing: Fourth costal section about two to three times as long as third costal section. Cross-vein r-m near middle of discal cell. Legs: Dark, with knees and basal fourth of tibiae yellow; apical end of tibiae and tarsal segments yellowish brown. Trochanters smooth. Hind femur ventrally with long pale hairs, especially apically; the longest hairs at least as long as width of femur. Front four femora posteriorly with large silvery patch at apical half; no basal spines, at most few hairs.

Abdomen. Lateral fan with few palish hairs. Abdominal terga shining black except first tergum with dense silver dusting, anterior half of second tergum and anterior fourth of third tergum with dense silvery dusting. All terga along lateral margins silver-grey dusted, on tergum 5 extending towards middle. In dorsal view, sternum 8 about half as long as tergum 5. In distal view, membraneous area occupying about half of sternum 8. Terminalia Fig. 9.

♀ unknown.

Etymology. After the silvery appearance of this species.

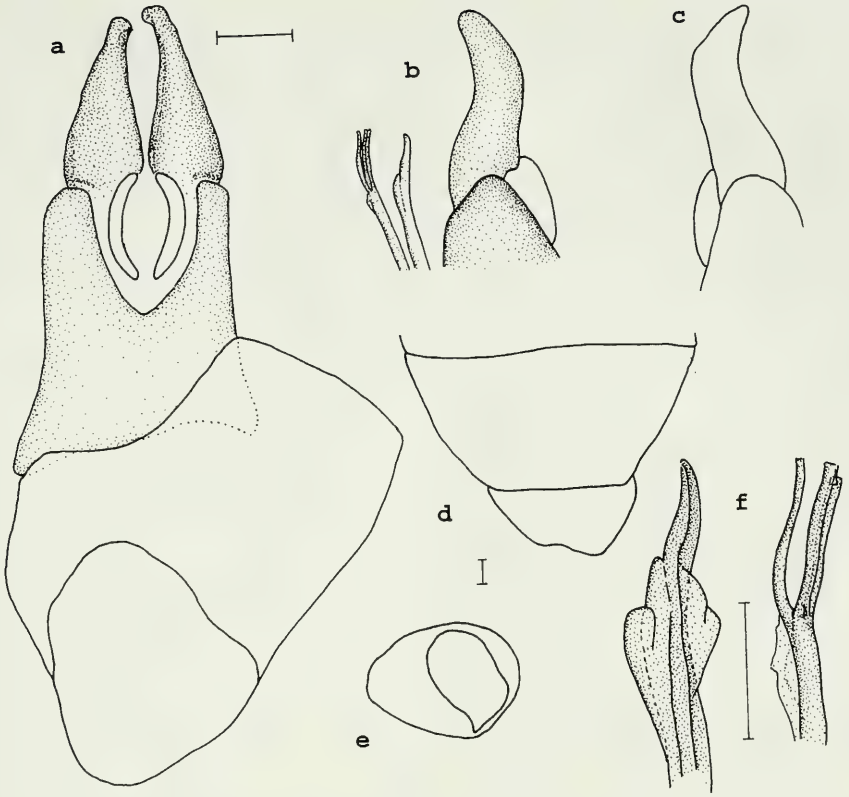

Fig. 9. *Tomosvaryella argyrata*, spec. nov., ♂ terminalia. a. dorsal view, b. outer surstylus with aedeagus and ejaculatory duct, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus, ventro-lateral; ejaculatory duct, lateral. Scale 0.1 mm.

Discussion. *T. argyrata*, spec. nov. belongs to a group of closely related species sharing all or most of the following characteristics: occiput with conspicuous silver collar; silvery patches on the posterior side of the front four femora; hind femur with very long hairs ventrally; silvery stripes and/or patches on the body. The group seems to include the following species *T. argyrata*, spec. nov., *T. argyratoides*, spec. nov., *T. debruyni*, spec. nov., *T. docta*, spec. nov. (all newly described from Israel), *T. nigronitida*, *T. nigrifemorata*, and *T. argentea* (Sack, 1935) described from Askhabad.

Tomosvaryella argyratoides, spec. nov.

Figs 7d, 10

Types. Holotype: ♂, Israel, Avdat, 25.III.1987, A. Freidberg (TAU). – Allotype: ♀, Avdat, 25.III.1987, A. Freidberg (TAU). – Paratypes: Israel: 3♂♂, same locality as holotype, 31.III.1981, F. Kaplan; 1♂, Beer-Mashash, 18.III.1971, Kugler; 1♂, Mashabke Sade, 19.IV.1967, Kugler; 1♂, Ein Gidron, 21.iv.1981, A. Freidberg; 1♂, Har Zavoa' nr. Yeruham, 11.IV.1990, A. Freidberg (all TAU). Type material returned to TAU, except two paratypes deposited in collection KBIN.

Description

Body length: 3.26-3.54 mm. Wing length: 3.54-3.67 mm.

♂. Head. Third antennal segment acuminate, brownish. Eyes touching for distance equal to ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput with anterior margin broad and conspicuously silvery, posteriorly more subshining black.

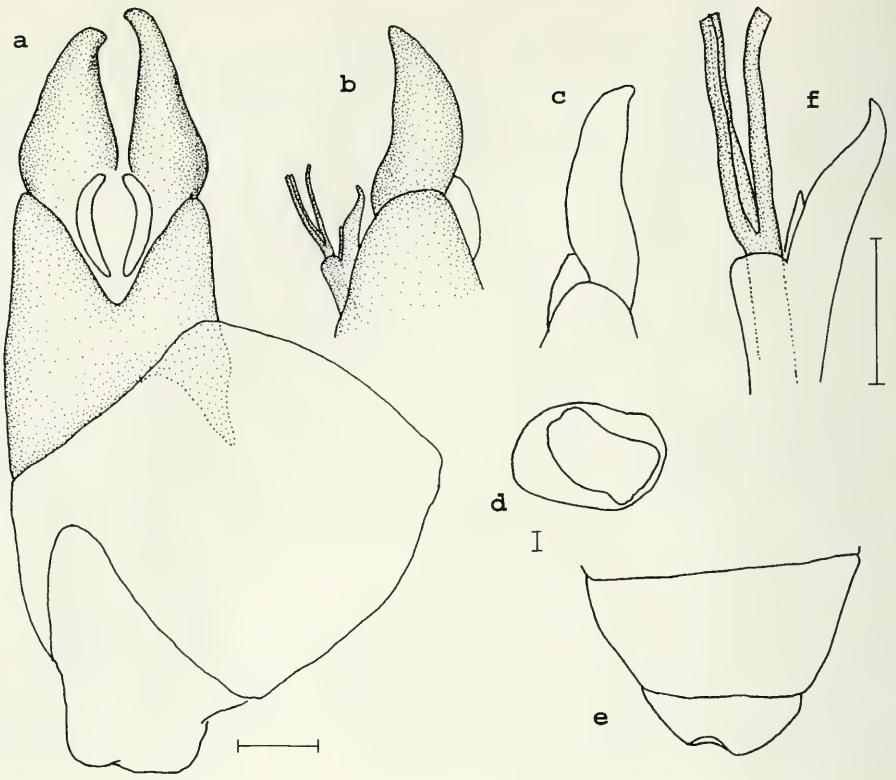

Fig. 10. *Tomosvaryella argyratoides*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus with aedeagus and ejaculatory duct, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral. Scale 0.1 mm.

Thorax. Humerus pale yellowish. Mesonotum subshining black; anterior margin with dense silvery dusting. Scutellum silvery dusting along anterior margin, on centre less so. Halter yellowish. Wing: Fourth costal section about three to four times as long as third costal section. Cross-vein r-m near middle of discal cell. Legs: Dark, with knees and basal fifth to sixth of tibiae yellow. Trochanters smooth. Front four femora with large silvery patches posteriorly (not as conspicuous as in *T. argyrata*, spec. nov.). No basal spines on femora.

Abdomen. Lateral fan with few short black hairs. Abdominal terga subshining black except first tergum with dense silvery dusting, anterior ⅔ of second tergum and anterior margin of third tergum with dense silvery dusting. All terga along lateral margins silver-grey dusted, tergum 5 with large silvery spots extending towards middle. In dorsal view, sternum 8 less than half as long as tergum 5; greyish brown dusted. In distal view, membraneous area occupying more than half of sternum 8. Terminalia Fig. 10.

♀. As ♂ except for the following characters. Third antennal segment longer acuminate, with whitish tip. Frons shining black at upper half. Occiput with upper part subshining black. Front four femora ventrally with 1-2 basal spines. Pulvilli about as long as last tarsal segment, front pulvilli longer. Terminalia Fig. 7d.

Etymology. Referring to the close relationship with the above described species, *T. argyrata*, spec. nov.

Discussion. *T. argyratoides*, spec. nov. also belongs to the group with silver bands and spots on abdomen (see above). It seems to be closely related to *T. argyrata* but differs in genital structure.

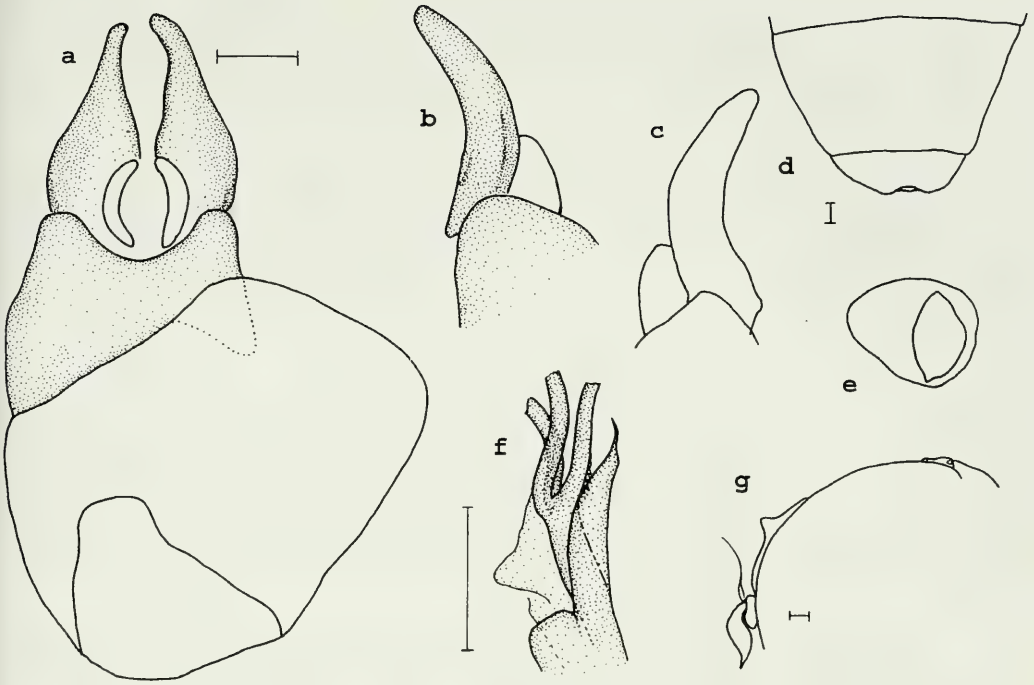

Fig. 11. *Tomosvaryella debruyni*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral; g. upper part head, lateral. Scale 0.1 mm.

Tomosvaryella debruyni, spec. nov.

Figs 7e, 11

Types. Holotype: ♂, Israel, Ein-Gedi, 29.III.1976, A. Freidberg (TAU). – Allotype: ♀, same data as holotype (TAU). – Paratypes. Israel: 1♂, Bor Mashash, 8.IV.1975, M. Kaplan; 1♂, N. Ze'elim, 24.III.1975, M. Kaplan (all TAU). TADZHIKISTAN: 1♂, Karamazor, 41.30N/69.49E, alpine meadow, 800 m, 18.v.1989, Bartak (SNMB). Holotype, allotype and one paratype returned to TAU, one paratype returned to SNMB, one paratype deposited in KBIN.

Description

Body length: 3.33-3.60 mm. Wing length: 3.38-3.54 mm.

♂. Head. Third antennal segment acuminate, brownish. Eyes touching for distance at most equal to ocellar triangle; lower part silver-grey pubescent, with conspicuous hornlike processus (Fig. 11g); upper part shining black. Occiput with anterior margin broad and conspicuously silvery, posteriorly more subshining black.

Thorax. Humerus pale yellowish. Mesonotum subshining black; anterior 2/5 with dense silvery dusting, posteriorly less densely brownish grey dusted. Scutellum silvery dusting on disc, otherwise shining black. Halter yellow. Wing: Fourth costal section about twice as long as third costal section. Cross-vein r-m near middle of discal cell. Legs: Dark, with knees and basal fourth of tibiae yellow; tarsi yellowish brown. Trochanters smooth. Front four femora silvery posteriorly; no basal spines. Hind femur with longer pale pilosity ventrally.

Abdomen. Lateral fan with few palish hairs. Abdominal terga shining black except first tergum with dense silver dusting, second tergum dense silvery dusted except posterior margin. All terga along lateral margins silver-grey dusted, on third tergum extending towards middle. In dorsal view, sternum 8 very small, less than 1/4 of tergum 5. In distal view, membraneous area occupying about half of sternum 8. Terminalia Fig. 11.

♀. As ♂ except for following characters. Frons shining black in upper part from hornlike processus onwards. Third costal section slightly shorter. Abdominal terga with lateral margins more extensive silver-grey dusted. Terminalia Fig. 7e.

Etymology. Named after my friend and fellow dipterist, Luc De Bruyn. Both he and this new species have a knob on their head in common.

Discussion. *T. debruyni*, spec. nov. belongs to the group with silver bands and spots on abdomen, and anterior margin of the occiput silver. Considerable variation was noticed in the few specimens, regarding the extensivity of the silver coloured patches, and the distance for which the eyes touch in the males. However, the genital structure shows consistency. In one ♂ specimen (Palestina, Beth Hakerem, Jerusalem, 22.V.1950, O. Theodor (TAU) however, the surstyli were slighlty shorter. It is not included in the type series.

Tomosvaryella dentiterebra (Collin, 1949)

Diagnosis. Third antennal segment acuminate, brown. Occiput with silvery margin anteriorly. Legs dark with knees and basal third of tibiae yellow; tarsal segments yellow except last segment; hind trochanter smooth; front four femora with conspicuous silvery patches posteriorly. Abdomen mainly subshining black, weakly brownish grey dusted. Abdominal sternum 8 very short, less than one fourth of tergum 5 in dorsal view. Membraneous area occupying less than half of sternum 8. ♀ frons silver-grey pubescent except in front of ocellar triangle for length equal to triangle. Body more greyish dusted.

Material. Egypt: series of three syntypes. ♂, Edku Salt Lakes, 2.VII.1944, R. Coe (hereby designated as lectotype); 1♀, same locality and date as lectotype; 1♀, Lake Karoun, IX.1945, R. Coe (both designated as paralectotypes) (all NHM).

Discussion. Although not found among the material of Israel, this species is mentioned here because of its close relationship with some of the Israeli material. It belongs to the *argyrata* group with silvery margin of the occiput and conspicuous silvery patches on front four femora. It can be differentiated by the absence of any conspicuous silvery patches on thorax and by the shape of the terminalia.

Tomosvaryella docta, spec. nov.

Figs 7f, 12

Types. Holotype: ♂, Egypt, Sinai Mts, St. Katharina, 18.VII.1974, F. Kaplan (TAU). – Allotype: ♀, same date and locality as holotype (TAU). – Paratypes: Egypt: 1♂, 1♀, same date and locality as holotype; 2♀♀, same locality as holotype, 12.VII.1969, Kugler; 1♀, Sinai Mts, El-Arbain, 14.VII.1974, F. Kaplan. – Israel: 1♂, 1♀, Maoz Hayyim, 23.X.1978, A. Freidberg; 1♀, Ein-Gidron, 21.IV.1981, F. Kaplan; 1♀, N. Amud, 6.X.1974, A. Freidberg (all TAU). Type material returned to TAU, except two paratypes deposited in KBIN.

Description

Body length: 3.20-3.40 mm. Wing length: 2.65-2.92 mm.

♂. Head. Third antennal segment acuminate; yellow-brown. Eyes touching for distance equal to 1.5 times length of ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper third more subshining black-brown.

Thorax. Humerus yellow-white. Mesonotum mainly shining black-brown, weakly and narrowly greyish dusted along margins. Scutellum shining black, except anterior margin greyish dusted. Halter yellow. Wing: Fourth costal section two to three times as long as third costal section. Cross-vein r-m near middle of discal cell. Legs: Dark, with knees and basal third of tibiae yellow. Tarsal segments yellow-brown, last tarsal segment brown. Front four femora posteriorly with large silvery patch at apical part; no basal spines. Trochanters smooth.

Abdomen. Lateral fan with dark bristly hairs. Abdominal terga shining black-brown; tergum 1 greyish dusted, viewed obliquely from front terga 2-3 with silvery shine. Sternum 8 subshining brown, greyish-brown dusted; in dorsal view, more than half as long as tergum 5. In distal view, membraneous area irregulary oval to roundish shaped, occupying about half of sternum 8. Terminalia Fig. 12.

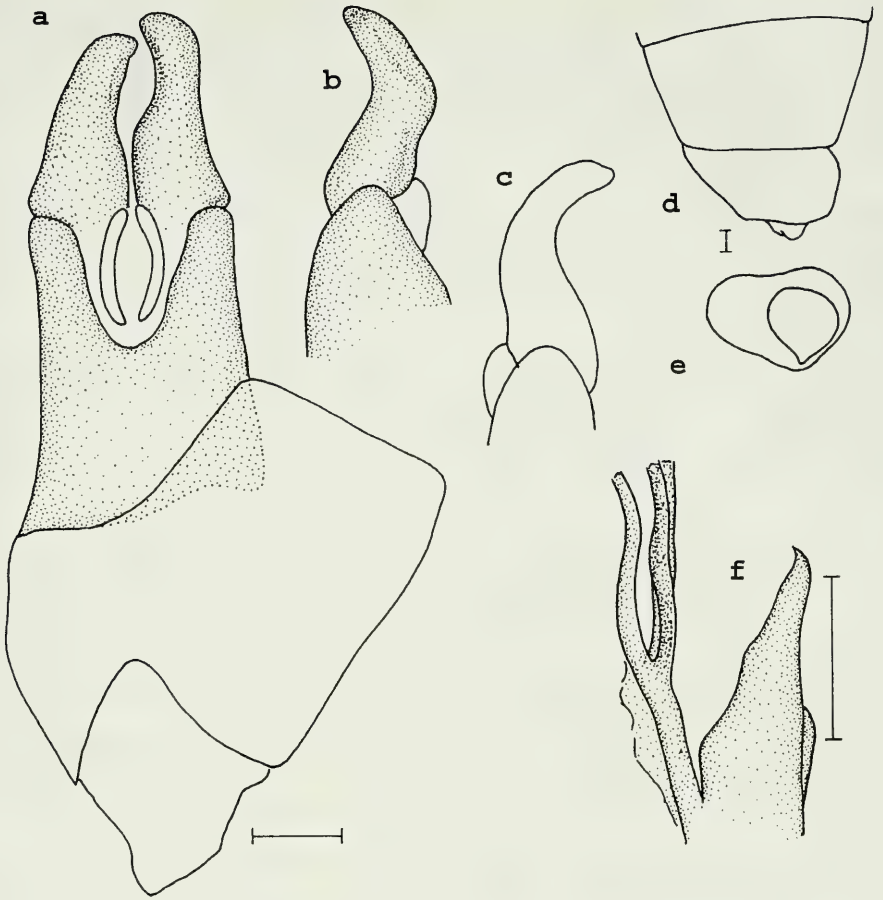

Fig. 12. *Tomosvaryella docta*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral. Scale 0.1 mm.

♀. As ♂ except for the following characters. Third antennal segment paler. Frons shining in upper part for distance equal to twice ocellar triangle. Front four femora with well developed basal spines. Tibiae more yellowish. Front four pulvilli well developed, longer than last tarsal segment; hind pulvilli about as long as segment. Terminalia Fig. 7f.

Etymology. After the Latin 'doctus' meaning wise or learned. This is a reference to St. Catherina after whom the type locality is named. She is considered a saint who presumably lived in the 4th Century and who was martyred in Alexandria. She is celebrated for her learning and philosophical culture. A monastry occupied by Orthodox Christian monks and founded by the Emperor Justinian in 530 AD is situated here.

Discussion. Based on the general shape of the surstyli and ejaculatory duct, *T. docta* seems to be related to the *argyrata* group as described above. The silvery appearance is however not so distinct.

Tomosvaryella freidbergi, spec. nov.

Figs 7g, 13

Types. Holotype: ♂, Israel, Mt Hermon (occ. Golan Heights), 2000 m, 1.VII.1986, A. Freidberg (TAU). – Allotype: ♀, same locality and data as holotype (TAU). – ParaTypes. Israel: 3♂♂, same date and locality as holotype; 1♂, same locality as holotype, 16.VIII.1976, A. Freidberg; 1♂, 28.VI.1977, A. Freidberg; 1♂, 9.VII.1975,

A. Freidberg; 1♀, 30.V.1978, D. Furth; 2♂♂, 5.IX.1981, A. Freidberg; 1♀, 21.VI.1982, A. Freidberg; 1♂, 2♀♀, 2.VIII.1982, A. Freidberg; 1♀, 7.VII.1987, A. Freidberg; 1♂, 1♀, 1300 m, 22.V.1973, A. Freidberg; 3♂♂, 1♀, Meron, 11.VI.1974, F. Nachbar.

Additional material (not included in type series). Israel: 1♂, Latrum, 4.VII.1985, A. Freidberg; 1♂, Tirat Zvi, 11.V.1984, A. Freidberg; 1♀, Herzliyya, 24.V.1981, A. Freidberg; 1♀, En Boqeq, 1.vii.1970, Kugler; 1♀, W. Kelt, 30.IV.1973, D. Furth. – Egypt: 2♂♂, Sinai Mts St Katharina, 18.VII.1974, F. Kaplan (all TAU). All material returned to TAU except 4 paratypes deposited in KBIN.

Description

Body length: 2.52-3.06 mm. Wing length: 2.38-2.72 mm.

♂. Head. Third antennal segment acuminate, dark brown. Eyes touching for distance equal to 1.5 times ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper part brownish.

Thorax. Humerus yellow. Mesonotum densely brownish dusted, anterior margin more greyish dusted, posterior part and scutellum more subshining black. Dorsocentral row with dark hairs, well developed anteriorly. Halter yellow. Wing: Fourth costal section two to three times as long as third costal section. Cross-vein r-m just beyond middle of discal cell. Legs: Dark, knees narrowly yellow. Hind femur with posteroventral row of longer hairs. Trochanters smooth. Front four femora with 1-2 basal spines.

Abdomen. Lateral fan with few dark hairs. Abdominal terga subshining black-brown, brownish dusted, lateral margins greyish. In dorsal view, sternum 8 half as long as tergum 5. In distal view, membraneous area occupying less than half of sternum 8. Terminalia Fig. 13.

♀. As ♂ except for the following characters. Frons completely greyish dusted. Dorsocentral rows more developed. Pulvilli longer than last tarsal segment. Abdomen more extensively greyish dusted along lateral margins. Terminalia Fig. 7g.

Etymology. This species is named in honour of Dr. Amnon Freidberg, who collected the type material of this species, as well as most of the material studied here.

Discussion. This species is closely related to *T. kuthyi*. Both species can be differentiated by the smaller size, smaller membraneous area (less than half of sternum 8) in the ♂ and the shorter piercer in the ♀ of *T. freidbergi*, spec. nov.

Tomosvaryella frontata (Becker, 1898)

Diagnosis. Third antennal segment acuminate, yellow. ♂ eyes not touching, separated for approximately the width of one ommatidium. Legs dark with tarsal segments wholly and margins of tibiae broadly yellow; hind trochanter smooth. Abdomen shining black, only weakly brownish dusted; with dispersed but conspicuous, short darkish hairs. Abdominal sternum 8 without membraneous area (Fig. 8a). Abdominal sternum 6 with three distinct tubercles on appendage. ♀ frons shining black for upper two-thirds. Pulvilli about as long as last tarsal segment.

Material. Israel: 13 specimens from the following localities: Akko; N. Bsor, nr Ze'elim; Yeroham; Enot Zukim; Nizzanim; Michmoret (all TAU).

Discussion. This species was redescribed in detail by Hardy (1966), based on material reared from the Tamarix leafhopper *Opsius stactogalus* Fieber. It is a southern species, recorded from France, Italy and Rumania. Bodenheimer (1937) mentions this species from Palestina.

Tomosvaryella geniculata (Meigen, 1824)

Diagnosis. Third antennal segment long acute; brownish with apical margin paler. Legs dark with knees narowly yellow. Mesonotum greyish brown dusted. Abdomen subshining black-brown, brownish dusted, lateral margins more greyish. Abdominal sternum 8 very short (Fig. 8b); other abdominal sterna covered with dense velvet like, brownish pile.

Material. Israel: 1♂, Gesher, 27.x.1974, D. Furth; 1♂, Mash'abbe Sade, 19.III.1978, A. Freidberg (TAU).

Discussion. A widespread species, found all over Europe. It can be differentiated from any other European or Afrotropical *Tomosvaryella* by the presence of dense velvet-like pile on the abdominal sterna.

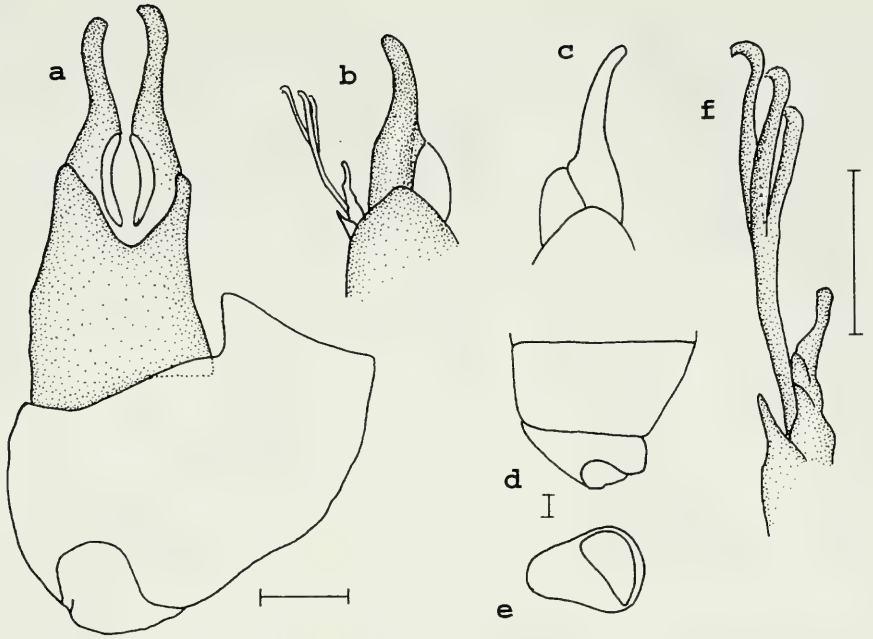

Fig. 13. *Tomosvaryella freidbergi*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus with aedeagus and ejaculatory duct, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral. Scale 0.1 mm.

Tomosvaryella helwanensis (Collin, 1949)

Diagnosis. Third antennal segment long acuminate; yellow. Legs mainly yellow, femora largely dark with margin narowly yellow, tibiae with dark median patch. Abdomen shining black-brown, weakly brownish dusted, lateral margins more densely greyish; with dispersed but conspicuous pilosity. ♂ abdominal sternum 8 without membraneous area (Fig. 8c). ♀ frons shining black in upper half. Pulvilli at most as long as last tarsal segment.

Material. Egypt: series of 20 syntypes (11♂♂, 9♀♀), Helwan, IX.1944, R.L. Coe (NHM), ♂ lectotype and 10♂ and 9♀ paralectotypes hereby designated and accordingly labeled; 1♀, Sinai, Azaima, 1.VII.1972, A. Freidberg. – Israel: 1♂, Tel Aviv, Savion, 15.IX.1982, Y. Zvik; 1♀, Ze'elim, 16.VI.1986, A. Freidberg (all TAU).

Discussion. This species was originally described from Egypt. It was not included in the Catalog of Palaearctic Region (Tanasijtshuk 1988), and its distribution is poorly known. The ♀ specimens have a slightly more elongated tip at the piercer than the ♀ syntypes. The ♂ specimen seems to be conspecific with the syntype material.

Tomosvaryella inermis, spec. nov.
Fig. 14

Types. Holotype: ♂, Israel, Maoz Hayyim, 23.X.1978, A. Freidberg (TAU). – Paratypes: Israel: 2♂♂, same date and locality as holotype; 1♂, Btecha [= Biq'at Beit Zeida], 12.VI.1974, A. Freidberg; 1♂, Rafid (occ. Golan Heights), 8.VIII.1973, A. Freidberg; 1♂, Mas'ada (occ. Golan Heights), 3.X.1970, Kugler (all TAU). All type material returned to TAU except one paratype deposited in KBIN.

Description

♂. Body length: 2.92-3.20 mm. Wing length: 2.92-3.10 mm.

Head. Third antennal segment acuminate; brownish, apical margin pale. Frons, eyes touching for

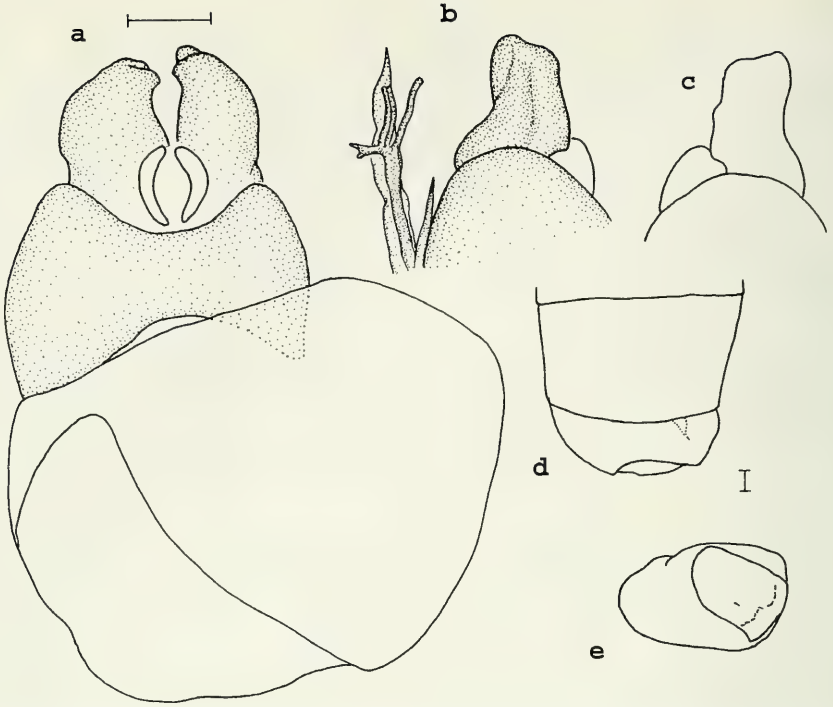

Fig. 14. *Tomosvaryella inermis*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus with aedeagus and ejaculatory duct, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal. Scale 0.1 mm.

distance equal to 1.5 times the ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper third greyish brown.

Thorax. Humerus pale yellowish. Mesonotum mainly brown dusted, anteriorly greyish. Scutellum brownish dusted, posteriorly more greyish. Halter yellow. Wing: Fourth costal section twice as long as third costal section. Cross-vein r-m beyond middle of discal cell. Legs: Dark, with knees, basal fourth and apical margin of tibiae narrowly yellow. Tarsal segments yellow, last tarsal segment dark. Trochanters smooth, hind trochanter with several short dark bristles. Front four femora with 1-2 basal spines.

Abdomen. Lateral fan with bristly dark hairs. Abdominal terga subshining black-brown; greyish brown dusted, lateral margins more greyish. All terga with conspicuous bristly dark pilosity. In dorsal view, sternum 8 less than half as long as tergum 5. In distal view, membraneous area occupying about half of sternum 8. Terminalia Fig. 14.

♀ unknown.

Etymology. Referring to the smooth trochanters in the ♂, which is in contrast to the other species belonging to this group.

Discussion. This species clearly belongs to the *subvirescens* group (see De Meyer 1993) because of the narrowed epandrium, and the conspicuous pilosity on abdominal terga. It is however the only species with smooth hind trochanters, in contrast to the other representatives who all have a distinct processus.

Tomosvaryella inopinata, spec. nov.

Fig. 15

Types. Holotype: ♂, Israel, Giv'at Koah, 1.VII.1987, Yarom & Zvik (TAU). – Paratypes: Israel: 1♂, 'En Mor, 19.IV.1975, A. Freidberg; 1♂, Neot Hakikas, 20.V.1974, A. Freidberg; 1♂, Sedom, 20.IX.1971, Kugler. Egypt: 1♂, Sinai Mts, St Katharina, 18.VII.1974, F. Kaplan (all TAU). Type material returned to TAU, 1 paratype deposited in KBIN.

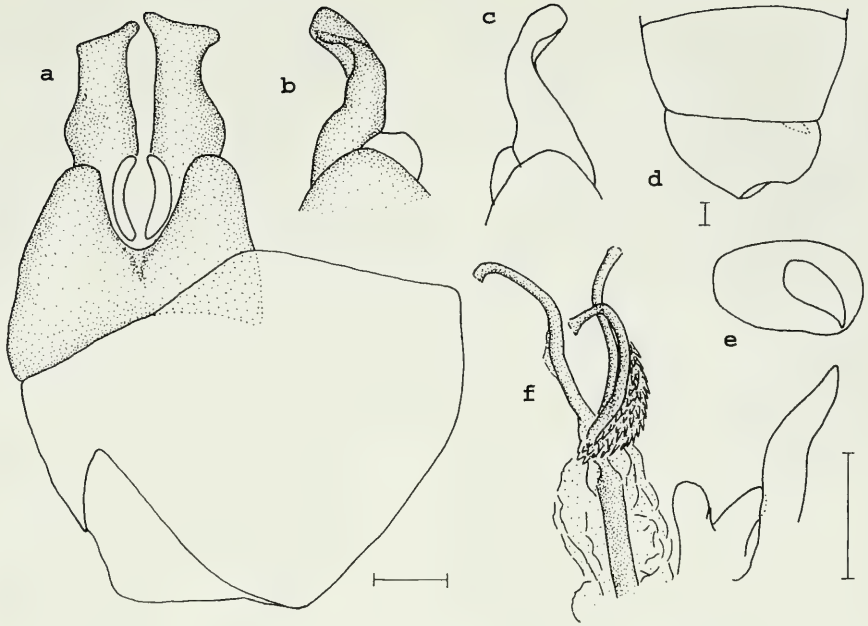

Fig. 15. *Tomosvaryella inopinata*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral. Scale 0.1 mm.

Description

♂. Body length: 3.26-3.40 mm. Wing length: 2.86-3.33 mm.

Head. Third antennal segment acuminate; brown. Eyes touching for distance equal to twice length of ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper third more subshining black-brown.

Thorax. Humerus yellow-white. Mesonotum subshining black-brown, greyish dusted, centre more brownish grey dusted. Halter yellow. Wing: Fourth costal section three times as long as third costal section. Cross-vein r-m just beyond middle of discal cell. Legs: Dark, with knees and basal fourth till third of tibiae yellow. Tarsal segments yellow-brown, last tarsal segment brown. Trochanters smooth.

Abdomen. Lateral fan with short pale hairs. Abdominal terga subshining black-brown; tergum 1 greyish dusted, other terga brownish dusted, lateral margins greyish dusted; tergum 5 with large silvery spots extending towards middle, tergum 4 with smaller silvery spots. In dorsal view, sternum 8 more than half as long as tergum 5. In distal view, membraneous area irregulary oval shaped, occupying less than half of sternum 8. Terminalia Fig. 15.

♀ unknown.

Etymology. From the Latin 'inopinatus' meaning unexpected, or unlooked for and referring to its close relationship with a southern African species.

Discussion. *T. inopinata*, spec. nov. is closely related to *T. oligoseta* De Meyer from southern Africa. It shows the same kind of subsymmetrical surstyli with broadened distal ends; and the long tubiform ejaculatory ductuli, one having a row of small teeth. There are some small differences in the shape of the surstyli and also the apical part of the aedeagus is differently formed. In *T. oligoseta*, the dorsocentral hairs and abdominal lateral fan are completely reduced, while in *T. inopinata* they are still present albeit very short.

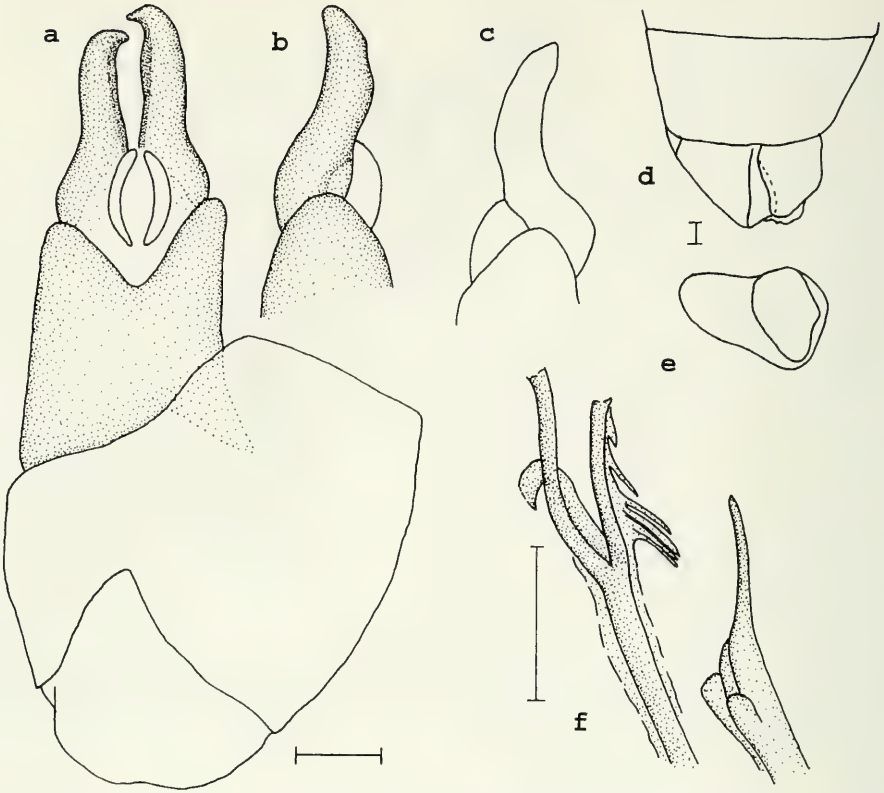

Fig. 16. *Tomosvaryella israelensis*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral. Scale 0.1 mm.

Tomosvaryella israelensis, spec. nov.

Figs 7h, 16

Types. Holotype: ♂, Israel, Kfar Shamai, 30.IX.1975, A. Freidberg (TAU). – Allotype: ♀,same date and locality as holotype (TAU). – Paratypes: Israel: 1♂, Maoz Hayyim, 23.X.1978 A. Freidberg; 1♂, Meron, 11.VI.1974, F. Nachbar; 1♂, Mash'abbe Sade, 6.IX.1974, M. Kaplan; 1♂, N. Amud, 6.X.1974, A. Freidberg; 1♂, Ze'elim, 6.XII.1976, A. Freidberg; 1♂, Mt Hermon (occ Golan Heights), 22.V.1973, A. Freidberg (all TAU). Type material returned to TAU, except two paratypes deposited in KBIN.

Description

Body length: 2.52-2.79 mm. Wing length: 2.38-2.62 mm.

♂, Head. Third antennal segment acuminate; yellow-brown, apical margin whitish. Eyes touching for distance equal to ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper third less densely greyish brown.

Thorax. Humerus yellow. Mesonotum subshining black, brownish dusted; anterior margin broadly greyish dusted. Scutellum greyish dusted except anteriorly more brownish. Halter yellow. Wing: Fourth costal section about twice to three times as long as third costal section. Cross-vein r-m at middle of discal cell. Legs: Dark, with knees and basal fourth of tibiae yellow. Tarsal segments yellow, last tarsal segment slightly darker. Hind femur with posteroventral row of longer pale hairs. Trochanters smooth.

Abdomen. Lateral fan with palish hairs. Abdominal terga subshining black, brownish dusted; first tergum greyish dusted. Terga 4-5 with large silver-grey spots laterally. In dorsal view, sternum 8

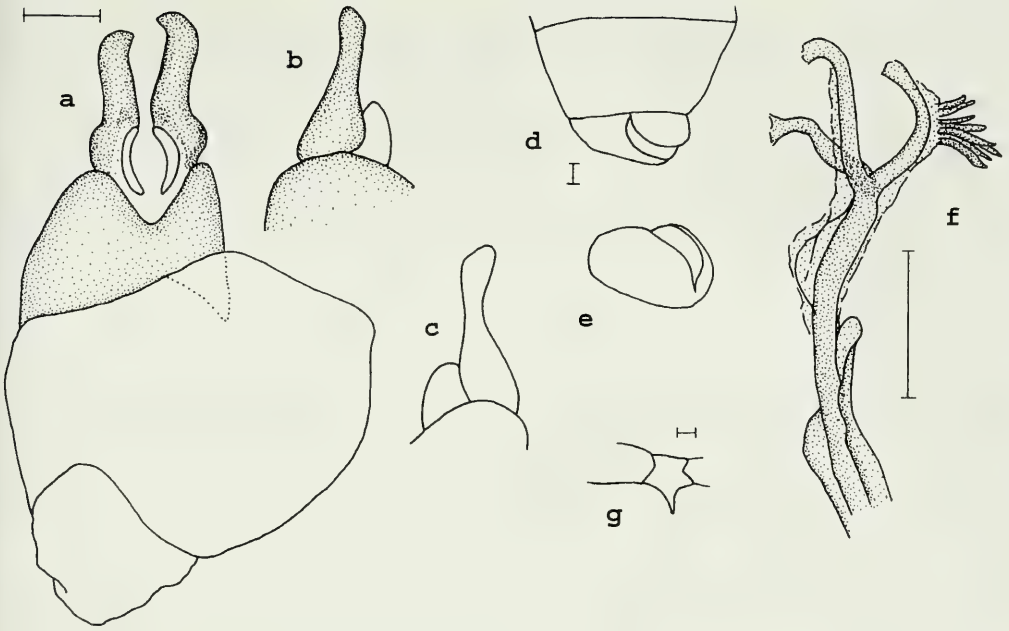

Fig. 17. *Tomosvaryella jubata*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral; g. hind trochanter, anterior. Scale 0.1 mm.

almost as long as tergum 5; with dorsal suture. In distal view, membraneous area occupying half of sternum 8. Terminalia Fig. 16.

♀. As ♂ except for the following characters. Frons completely greyish pubescent. Front four femora with 2 basal spines ventrally. Terminalia Fig. 7h.

Etymology. Referring to the type locality Israel.

Discussion. *T. israelensis*, spec. nov. belongs to the *kuthyi* species complex (see above) and resembles most the newly described *T. parakuthyi*. The lateral shape of the surstyli is however distinctly different.

Tomosvaryella jubata, spec. nov.

Fig. 17

Types. Holotype: ♂, Israel, Sedom, 20.IX.1971, Kugler (TAU). – Paratypes: Israel: 4♂♂, same locality and data as holotype; same locality as holotype: 2♂♂, 26.VI.1976; 1♂, 21.IV.1981, F. Kaplan; 2♂♂, 25.III.1987, Yoram & Zvik; Ein Akev, 2♂♂, 8.VIII.1977, A. Freidberg; Ein-Gidron, 1♂, 21.IV.1981, F. Kaplan (all TAU). Type material returned to TAU, except three paratypes deposited in KBIN.

Description

♂. Body length: 2.31-2.65 mm. Wing length: 2.20-2.58 mm.

Head. Third antennal segment acuminate; palish. Eyes touching for distance slightly less than ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper third less densely so.

Thorax. Humerus whitish yellow. Mesonotum greyish dusted, centre brownish dusted. Scutellum greyish dusted. Halter whitish yellow. Wing: Fourth costal section about 1.5 times as long as third costal section. Cross-vein r-m at middle of discal cell. Legs: Dark, with knees and basal third of tibiae yellow. Apical margin of tibiae yellowish brown. Tarsal segments yellow. Hind trochanter with pointed processus (fig. 17g). Femora without basal spines.

Abdomen. Lateral fan with several pale hairs. Abdominal terga subshining black-brown, weakly greyish dusted; first tergum and lateral margins of other terga more densely so, especially terga 4-5. In dorsal view, sternum 8 slightly less than half as long as tergum 5; with dorsal suture. Terminalia Fig. 17.

♀ unknown.

Etymology. From the Latin adjective jubatus, meaning 'having a mane' or 'crested' and referring to the crest like structure on the ejaculatory ductulus.

Discussion. This new species belongs to the Afrotropical *africana* group of *Tomosvaryella* (cfr De Meyer 1993), recognized by the dorsal suture on abdominal sternum 8 and the appendages on one of the ejaculatory ductuli.

Tomosvaryella kuthyi Aczél, 1944

Diagnosis. Third antennal segment acuminate; dark brown. Legs dark with knees only narrowly yellow, hind femur with posteroventral row of long hairs. Abdomen subshining black, brownish dusted, lateral margins more densely greyish especially terga 4-5. ♂ abdominal sternum 8 with large membraneous area (Fig. 8d). ♀ with piercer reaching till first tergum.

Material. Israel: 110 specimens from the following localities: Panyas (occ. Golan Heights); Bet Guvrin; Bet Dagan; Bet Hillel; Bet Nehemya; Har Karmel; Eshta'ol; Hefa; Hamat Gader; Herzliyya; Jericho (occ. West Bank); Kfar Adumim; Lattun; Ma'ale Gamla; Har Meron; Mt Meron; Monfort; Negba; Nemrod; Nin David; N. Dan; Park HaYarden; Savion; Tel Aviv; Tirat Zvi; Up. N. Amud (all TAU).

Discussion. This is a fairly common species throughout Europe except for the northern part (De Meyer 1992b). Together with *T. freidbergi* and *T. parakuthyi* it forms a closely related group, differentiated by the presence of a row of longer hairs over the entire ventral side of the hind femora.

Tomosvaryella minima (Becker, 1898)

Diagnosis. Third antennal segment acuminate; brown, apical margin whitish. Mesonotum mainly dusted brown, anterior fourth greyish dusted, behind humeri more extensively so. Fourth costal section three times as long as third costal section. Legs dark, with knees narrowly yellow. Trochanters smooth. Abdominal terga weakly subshining black-brown; tergum 1 greyish dusted, other terga brownish dusted, lateral margins broadly greyish dusted. Sternum 8 with dorsal suture (Fig. 8e).

Material. Israel: 1♂, Arad Junc., 5 km S Devira, 21.III.1985, A. Freidberg; 1♂, 'En Mor, 29.IV.1987, A. Freidberg (TAU).

Discussion. This specimen is conspecific with material studied from West Europe and identified as *T. minima*. *T. minima* is a widespread European species, mainly recorded from western and Central Europe.

Tomosvaryella ?mutata (Becker, 1898)

Diagnosis. Third antennal segment acuminate; brownish yellow. Legs dark with knees yellow, and tarsi brownish yellow; trochanters smooth. Abdomen weakly shining black-brown, greyish brown dusted, tergum 5 with two large silvery spots laterally. Membraneous area long and slender (Fig. 8f). ♀ with third antennal segment longer and lateral margins of abdomen more greyish.

Material. Egypt: 1♂, 1♀, Assiut XII 44395 Becker coll. (MNHU). 38 specimens from the following localities: Israel: Bet Dagan; Har Karmel; Ein Yahar; N. Zavitan, nr Qatzzin (occ. Golan Heights); Qziat; Ramat Magshimium (occ. Golan Heights); Herzliya; Ma'de adamim; Maoz Hayyim; Meron; N. Amud; Neot Hakikas; Sedom; Ze'elim. – Egypt: Sinai Mts, St Katarina (all TAU).

Discussion. This species was described from Egypt and furthermore reported from Spain and Hungary. Aczél (1944) mentions that more than one species could be involved. The Israeli material does indeed show considerable variation in the shape of surstyli, albeit the ejaculatory duct, membraneous area, and apical part of aedeagus are similar. The holotype from the Schnabl collection was not studied. Two specimens (1♂, 1♀) from Assiut, det. and coll Becker were seen and they seem to be two different species. The ♂ corresponds with what is considered here as *T. mutata*, while the ♀ does

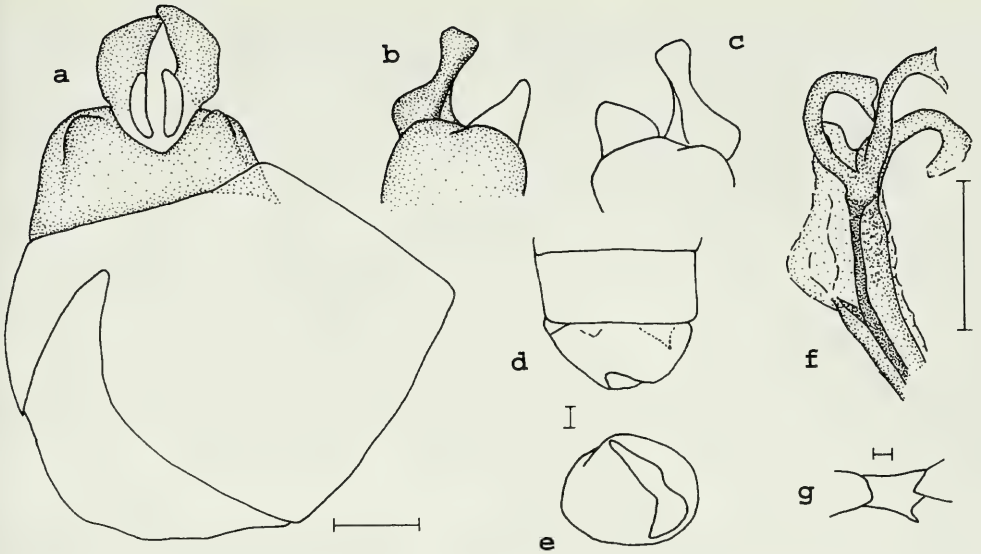

Fig. 18. *Tomosvaryella nodosa*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. aedeagus and ejaculatory duct, lateral; g. hind trochanter, anterior. Scale 0.1 mm.

not correspond to any of the species we have seen. It is considered preferable to wait until all related type material can be studied, and the specimens are placed tentatively under *T. mutata*. Five ♀ specimens (from Kfar-Shamai; Majdel Chams (occ. Golan Heights); and Ze'elim) seem to be related to this species. They resemble the ♀ *mutata* completely except that the piercer is much longer (reaching till first sternum).

Tomosvaryella nigronitida (Collin, 1958)

Diagnosis. ♀ third antennal segment long acuminate; brownish yellow with apical margin palish. Legs shining black except knees yellow and tarsal segments brownish yellow; four anterior femora with large silvery patch posteriorly; ventrally with 2 basal spines. Halter black. Abdomen shining black-brown, lateral margins narrowly greyish dusted.

Material. 1♀, Croatia, Dalmatia, Korcula (east end), 22-27.V.1955, R. Coe (holotype) (NHM); 1♀, Israel, Meiron, 5.V.1975, F. Kaplan (TAU).

Discussion. *T. nigronitida* is one of the two Palaearctic *Tomosvaryella* spp. species with black halteres. The other, *T. cilifemorata* (Becker) is known from Tunis and Egypt. It is very similar but can be differentiated by the different shape of ovipositor: in *T. nigronitida*, the piercer is much longer in comparison to the base and reaches up till first sternum. No ♂ specimens were seen.

Tomosvaryella nodosa, spec. nov.

Figs 7i, 18

Types. Holotype: ♂, Israel, Elat, 6.IV.1973, A. Freidberg (TAU). – Allotype: ♀, same date and locality as holotype (TAU). – Paratypes: Israel: 2♀♀, same date and locality as holotype; 1♂, Moon Valley, 16.V.1981, T. Furman; 1♂, Neot-Hakikar, 8.IX.1974, A. Freidberg. – Egypt: 1♂, Taba, 29.IV.1974, A. Freidberg (all TAU). Type material returned to TAU, two paratypes deposited in KBIN.

Description

Body length: 2.24-2.58 mm. Wing length: 2.11-2.24 mm.

♂. Head. Third antennal segment long acuminate; yellow-brown. Eyes not touching, narrowly separated for width slightly less than one ommatidium; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper third less densely so.

Thorax. Humerus whitish yellow. Mesonotum greyish dusted, centre brownish grey dusted. Halter whitish yellow. Wing: Fourth costal section about twice as long as third costal section. Cross-vein r-m beyond middle of discal cell. Legs: Dark, with knees and basal third of tibiae yellow. Apical margin of tibiae yellowish brown. Tarsal segments yellow. Front four femora with basal spines poorly developed. Hind trochanter with pointed processus (Fig. 18g).

Abdomen. Lateral fan with several pale hairs. Abdominal terga subshining black-brown, weakly greyish dusted; first tergum and lateral margins of other terga more densely so, on tergum 5 extending towards middle. Sterna 3-4 with two knoblike protuberances along posterior margin, sternum 5 with larger protuberances. In dorsal view, sternum 8 about as long as tergum 5. In distal view, membraneous area narrow, elongated, sinoid. Terminalia Fig. 18.

♀. As ♂ except for the following characters. Frons silver-grey pubescent, shining in upper part for length equal to ocellar triangle, at lateral margins further so. Fourth costal sections 2-3 times as long as third costal section. Cross-vein near middle of discal cell. Tibiae darker; basal spines on front femora well developed; Pulvilli at most as long as last tarsal segment. Terminalia Fig. 7i.

Etymology. Referring to the knobby structures on the abdominal sterna.

Discussion. *T. nodosa*, spec. nov. belongs to the group with coiled ejaculatory ductuli and armed hind trochanters in the ♂. It mostly resembles *T. singuloides* De Meyer from Ethiopia in the symmetrical surstyli and shape of membraneous area. However, the paired protuberances on the abdominal sterna and the epandrium are unique in this group.

Tomosvaryella parakuthyi, spec. nov.

Figs 7j, 19

Types. Holotype: ♂, Egypt, Sinai, Ofira, 22.III.1981, A. Freidberg (TAU). – Allotype: ♀, same date and locality as holotype (TAU). – Paratypes: Egypt: 2♂♂, 2♀♀, same date and locality as holotype; 2♂♂, 2♀♀, Sinai, 20 km N Dahab, 12.III.1982; 1♂, 3♀♀, Dahab Junction, 14.III.1982; Dahab: 1♂, 7.IV.1973; 1♀, 23.V.1981 (all A. Freidberg); 1♂, Sinai, Wadi Kid, 14.III.1982, I. Yarom; 1♂, Sinai Mts, St Katharina, 13.VII.1974, F. Kaplan. – Israel: 4♂♂, Moon Valley, 16.V.1981, T. Furman; 1♂, Bor Mashash, 16.VI.1988, A. Freidberg. S. Palestine: 2♂♂, Ein Rhadian, dunes, 1.V.1954, O. Theodor (all TAU). Type material returned to TAU except 6 paratypes deposited in KBIN.

Description

Body length: 2.38-2.79 mm. Wing length: 2.18-2.52 mm.

♂. Head. Third antennal segment acuminate; pale brown, with whitish pilosity. Eyes touching for distance equal to ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted.

Thorax. Humerus pale yellow. Mesonotum and scutellum subshining black-brown; completely greyish dusted. Dorsocentral hairs palish. Halter pale yellow. Wing: Fourth costal section two till three times as long as third costal section. Cross-vein r-m at or just beyond middle of discal cell. Legs: Dark, knees narrowly yellow. Tarsal segments yellow, last tarsal segment dark. Hind femur with posteroventral row of longer hairs. Front four femora with 1-2 basal spines ventrally, usually poorly developed and almost absent. Trochanters smooth.

Abdomen. Lateral fan with few pale hairs. Abdominal terga mainly subshining black-brown, weakly greyish dusted, first tergum, anterior part of second tergum and lateral margins of terga 4-5 more extensively greyish. In dorsal view, sternum 8 more than half as long as tergum 5. In distal view, membraneous area occupying less than half of sternum 8. Terminalia Fig. 19.

♀. As ♂ except for the following characters. Frons completely greyish dusted. Dorsocentral rows more developed. Pulvilli longer than last tarsal segment. Fourth costal section shorter. Abdomen more extensively greyish dusted along lateral margins. Terminalia Fig. 7j.

Etymology. Referring to the close relationship with *T. kuthyi*.

Discussion. As mentioned above, this species is closely related to *T. kuthyi* and *T. freidbergi*, spec. nov. It can be differentiated from the former by smaller size, and smaller membraneous area. From the

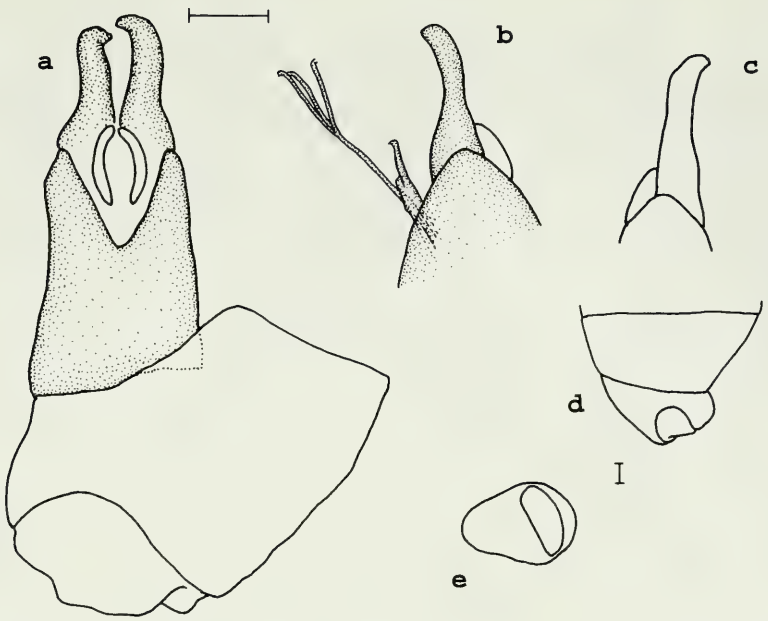

Fig. 19. *Tomosvaryella parakuthyi*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus with aedeagus and ejaculatory duct, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal. Scale 0.1 mm.

latter by the completely greyish appearance, and the longer piercer of the ♀. Also, some slight differences can be distinguished in the ♂ terminalia. In addition 5♂♂ from Elat (6.IV.1973, leg. A. Freidberg) were found, who resemble *T. parakuthyi* in most respect except for small differences in the surstyli. They are not included in the type series.

Tomosvaryella pusilla, spec. nov.

Figs 7k, 20

Types. Holotype: ♂, Israel, Herzliyya, 19.VIII.1981, A. Freidberg (TAU). – Allotype: ♀, Israel, Kfar Ruppin, 28.X.1978, A. Freidberg (TAU). – Paratypes: same locality as allotype: 1♂, 1♀, 25.X.1978, 1♀, 10.X.1978, A. Freidberg; 1♂, Bor Mashash, 21.VII.1986, A. Freidberg; 1♀, Akko Swamp, 23.X.1986, I. Yarom. Egypt: 1♂, St. Katharina, 18.VII.1974, F. Kaplan; 1♀, Sinai, Ofira Sewage, 2.V.1981, A. Freidberg (all TAU). Type material returned to TAU except 2 paratypes deposited in KBIN.

Description

Body length: 1.56-2.31 mm. Wing length: 1.63-2.18 mm.

♂. Head. Third antennal segment long acuminate; brown. Eyes touching for distance equal to half of ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper third less densely greyish-brown.

Thorax. Humerus whitish. Mesonotum subshining black-brown, weakly brownish dusted, anterior margin narrowly greyish dusted. Scutellum as centre of mesonotum. Dorsocentral hairs well developed, especially anteriorly. Halter yellow. Wing: Fourth costal section about as long as third costal section. Cross-vein r-m near middle of discal cell. Legs: Dark, with knees and basal fourth till fifth of tibiae yellow. Front four femora at most with 1-2 poorly developed bristles basally. Trochanters smooth.

Abdomen. Lateral fan with few hairs. Abdominal terga subshining black-brown, brownish dusted; lateral margins greyish dusted, on terga 4 and 5 extending towards middle. In dorsal view, sternum

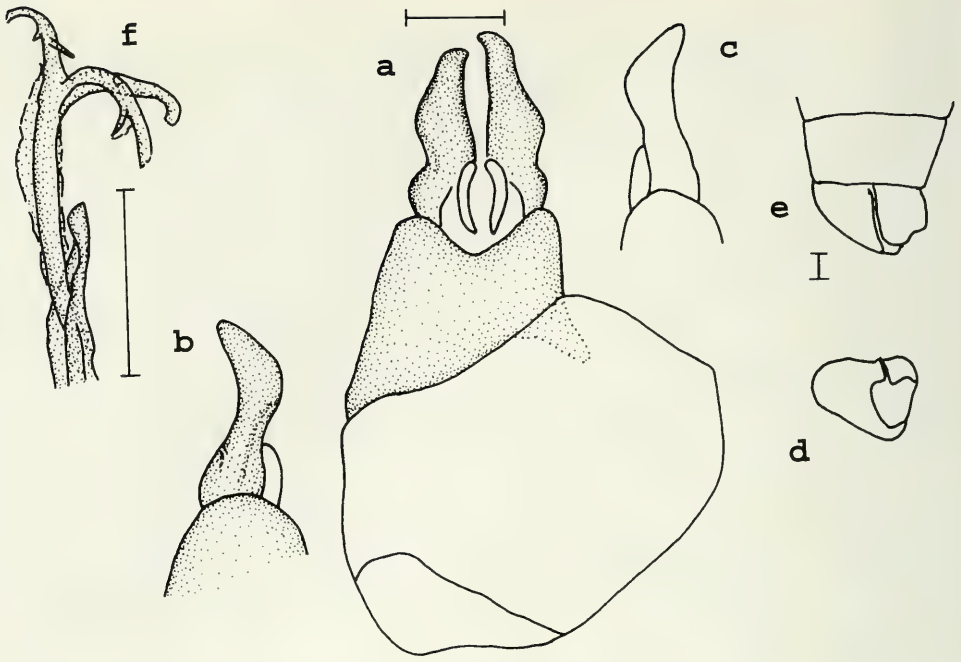

Fig. 20. *Tomosvaryella pusilla*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. ejaculatory duct, lateral. Scale 0.1 mm.

8 about as long as tergum 5, with dorsal suture. In distal view, membraneous area directed to right side, occupying less than half of sternum 8. Terminalia Fig. 20.

♀. As ♂ except for the following characters. Frons completely greyish pubescent. Front femora with basal spines. Pulvilli as long as last tarsal segment. Terminalia Fig. 7k.

Etymology. Referring to the small size of this species.

Discussion. This small species seems to belong to the *africana* group (see De Meyer 1993) because of the dorsal suture on the eight abdominal sternum and the teeth on the ejaculatory ductuli. The shape of the surstyli is however somewhat different from other representatives of this group. Also the hind trochanters in the ♂ are without protuberances.

Tomosvaryella sedomensis, spec. nov.

Fig. 21

Types. Holotype: ♂, Israel, Sedom, 20.IX.1971, Kugler (TAU). – Paratypes: 4♂♂, same locality and data as holotype (TAU). Holotype and 3 paratypes returned to TAU, one paratype deposited in KBIN.

Description

♂. Body length: 2.38-2.79 mm. Wing length: 2.38-2.52 mm.

Head. Third antennal segment long acuminate, pale yellow. Eyes not touching, separated for distance equal to one ommatidium; lower part silver-grey pubescent, upper part subshining black. Occiput silver-grey dusted, upper part more greyish brown.

Thorax. Humerus pale yellowish. Mesonotum and scutellum mainly greyish brown dusted. Halter yellow. Wing: Fourth costal section two to three times as long as third costal section. Cross-vein r-m near middle of discal cell. Legs: Dark, with knees, basal third and apical margin of tibiae, and tarsal segments yellow. Trochanters smooth. Front four femora with 1-2 basal spines.

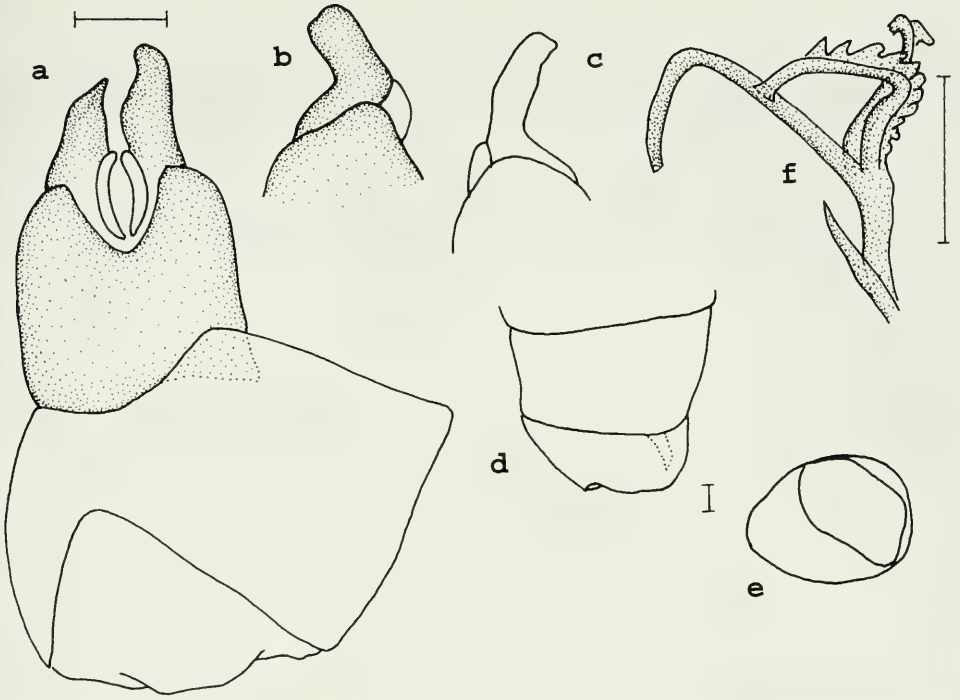

Fig. 21. *Tomosvaryella sedomensis*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. ejaculatory duct, lateral. Scale 0.1 mm.

Abdomen. Lateral fan with few palish bristly hairs. Abdominal terga greyish brown; tergum 1 greyish dusted; lateral margins of other terga greyish. In dorsal view, sternum 8 half as long as tergum 5. In distal view, membraneous area occupying about half of sternum 8. Terminalia Fig. 21.

♀ unknown.

Etymology. After the type locality, Sedom.

Discussion. The shape of the surstyli resembles most those of the Afrotropical *T. gibbosa* (from South Africa and Zaire). Their subsymmetrical and strongly curved form seems to refer to the *ancylostyla* group (see De Meyer 1993) and possibly both species are related to this group.

Tomosvaryella subvirescens (Loew, 1872)

Diagnosis. Third antennal segment long acuminate, brown with apical margin pale. Mesonotum subshining black-brown with dorsocentral rows of short dark hairs. Legs mainly dark with knees yellow, tarsal segments darkish; ♂ hind trochanter with trapezoid protuberance. Abdominal terga shining black-brown with lateral margins greyish; with short but conspicuous pilosity.

Material. 1♂, USA, Texas, Belfrage, (holotype) (MCZ). – Egypt, Sinai, Ofira Sewage: 1♂, 2.V.1981; 1♂, 21.V.1981, A. Freidberg. – Israel: 1♂, Elat, 4.V.1986, F. Kaplan (all TAU).

Discussion. ♂ and ♀ diagnostic characters are illustrated in De Meyer (1993). It seems to be a cosmopolitan species, recorded from most zoogeographical regions. It was recorded by Bodenheimer (1937) from Palestina, under the name of *P. pilosiventris* (junior synonym).

Tomosvaryella sylvatica (Meigen, 1824)

Diagnosis. Third antennal segment acuminate; brownish with apical margin paler. Legs dark with knees and tarsi yellow. Mesonotum greyish brown dusted. Abdomen subshining black-brown, weakly brownish dusted, lateral margins more greyish. Abdominal sternum 8 with slit like membraneous area (Fig. 8g).

Material. Israel: 1♂, Mt Hermon (occ. Golan Heights), 2000m, 12.VII.1984, Y. Zvik (TAU).

Discussion. This is the most widespread species in Europe, found in all subregions. Also reported from Tunis. A detailed redescription is given by Aczél (1944).

Tomosvaryella tecta De Meyer, 1993

Diagnosis. Third antennal segment long acuminate, brown with apical margin pale. Mesonotum subshining black-brown with dorsocentral rows of short dark hairs. Legs mainly dark with knees yellow; ♂ hind trochanter with triangular protuberance. Abdominal terga shining black-brown with lateral margins greyish; with short dark pilosity.

Material. South Africa: 1♂, Natal, Ndumu Game Reserve, 4-9.X.1982, J. Londt (holotype) (NMP); 1♀, Natal, Rietspruit farm, 13 km NE Pietermaritzburg, 13.III.1990, A. Whittington (allotype) (NMP). – Israel: 33 specimens from the following localities: 'Ammi'ad; Ashdod; Bet Shemesh; Bet Dagan; Elot; Hermon (occ. Golan Heights); Herzliyya; Jeruzalem, Mt Scopus; Kare-Deshe; Kfar Rugin; Ma'agan Michael; N. Bsor, near Ze'elim; Ra'anana; Ramat Hadar; Rishon te Zion; Tel Antipatris; Tel Aviv; W. Faria (occ. West Bank), Ein-Shibli (Wadi FAria, occ. West Bank); Yavne; Zetat. – Egypt: 1♀, Silvah, 22.XI.1943 (all TAU).

Discussion. ♂ and ♀ diagnostic characters are illustrated in De Meyer (1993). *T. tecta* is closely related to *T. subvirescens* and was previously confused with the latter. So far, it is only recorded from the Afrotropical region (South Africa and Kenya), although it might be much more widespread like *T. subvirescens*.

Tomosvaryella trichotibialis, spec. nov.

Fig. 22

Types. Holotype: ♂, Israel, Senir, 8.VII.1987, I. Nussbaum (TAU).

Description

♂. Body length: 3.4 mm. Wing length: 3.2 mm.

Head. Third antennal segment long acuminate; yellow-brown. Eyes touching for distance equal to 1.5 times of ocellar triangle; lower part silver-grey pubescent, upper part shining black. Occiput silver-grey dusted, upper part greyish-brown.

Thorax. Humerus pale yellow. Mesonotum weakly subshining black-brown, mainly brownish dusted, anterior margin greyish dusted. Scutellum as centre of mesonotum. Dorsocentral hairs indistinct. Halter yellow-brown. Wing: Fourth costal section about four times as long as third costal section. Cross-vein r-m well beyond middle of discal cell. Legs: Dark, with knees narrowly yellow. Hind tibia dorsally with conspicuous comb of long dark bristles at apical end (Fig. 22f). Femora and trochanters smooth. Tarsal segments dark. Pulvilli at most as long as last tarsal segment.

Abdomen. Lateral fan well developed with dark bristles. Abdominal terga weakly subshining black-brown, brownish dusted; anterior margin of second tergum and lateral margins of other terga greyish dusted, on tergum 5 extending towards middle. In dorsal view, sternum 8 about as long as tergum 5. In distal view, membraneous area directed to right side, occupying less than half of sternum 8. Terminalia Fig. 22.

♀ unknown.

Etymology. Referring to the long bristles on the hind tibia.

Discussion. This species can be readily differentiated from any other *Tomosvaryella* by the long conspicuous bristles on the hind tibia. The bold shape of the surstyli and the very fine ejaculatory ductuli are unlike any of the other *Tomosvaryella* species and its relationship is unclear.

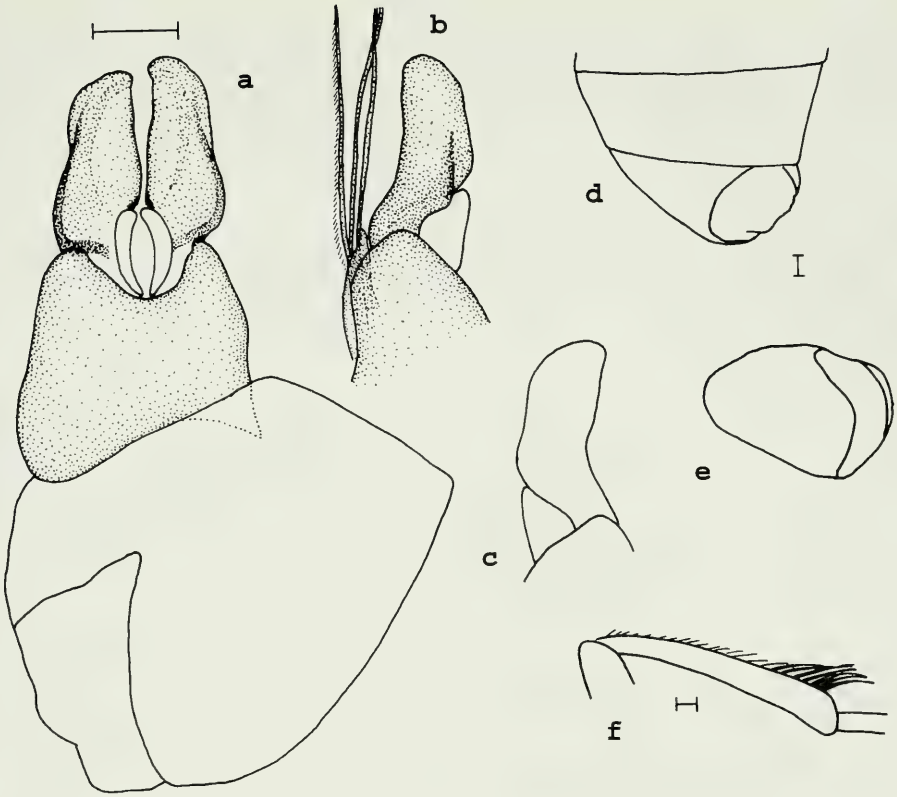

Fig. 22. *Tomosvaryella trichotibialis*, spec. nov., ♂ terminalia. a. dorsal view; b. outer surstylus with aedeagus and ejaculatory duct, lateral; c. inner surstylus lateral; d. tergum 5 and sternum 8 dorsal; e. sternum 8 distal; f. hind tibia, anterior. Scale 0.1 mm.

Tomosvaryella vicina (Becker, 1900)

Diagnosis. Third antennal segment acuminate, pale brown. Mesonotum weakly subshining black-brown. Legs mainly dark with knees yellow; ♂ hind trochanter with keel like protuberance, with short hairs. Abdominal terga subshining black-brown with lateral margins narrowly greyish; with short dark pilosity.

Material. Syntype ♂, Egypt, Luxor, '44629 II' (MNHU); 2♂♂, Israel, EIn Ghadian [=Hazeva], 1.V.1954, J. Wahrman (TAU).

Discussion. Illustration of ♂ genital structures and hind trochanter is given in De Meyer (1993). The species was originally described from Egypt by Becker, and additionally reported from Palestina by Bodenheimer (1937). A recent revision of the Afrotropical *Tomosvaryella* did not reveal any specimens, though Hardy (1961) mentions it from Zaire.

Discussion

With 45 species, the fauna of Israel is not very rich compared with other countries in the Palaearctic region. Countries like Belgium, the former Czechoslovakia, or Great Britain all have more than 70 species. The species composition is however quite special because of its geographical position. Freidberg (1988) has pointed out the unique position of Israel as belonging to the Palaearctic region but bordering Asia and Africa, as well as the diverse physiography of the country itself. He indicates that

the dipteran fauna of the area is predominantly Palaearctic in origin (the Palaearctic element occupying 20 % in Chironomidae up till 100 % in several other families). The Afrotropical element is considered second in importance, and Oriental and other elements can be noticed to a lesser extent. For Pipunculidae, the zoogeographical affinities seem to vary according to the genus studied. For the genera *Verrallia* and *Cephalops* the relationship is truely Palaearctic. The genus *Verrallia* knows an Holarctic distribution and *V. aucta* is a Palaearctic species, found throughout Europe. The representatives of *Cephalops* are also Palaearctic. *C. conjunctivus* is a mediterranean species with close relationship to Afrotropical species. The *Chalarus* species also seem to be of Palaearctic origin although the picture is incomplete here because of the poor knowledge of this group. The genus *Chalarus* has a mainly Holarctic distribution with a fair amount of representatives in the Neotropical region. This might however may be a bias because of insufficient study for the other regions. The genus does occur in the Afrotropical region (the author has seen *Chalarus* specimens from Kenya, Madagascar and South Africa) but their identification is unknown. Further study of this genus on a worldwide scale is necessary before any definite conclusions can be made.

The representatives of the genus *Eudorylas* also seem to be of Palaearctic origin. Species like *E. halteratus*, *E. longifrons*, *E. obliquus*, and *E. zermattensis* are widespread over Europe. The species complex of *E. ruralis*, *E. imitator*, and *E. sinaiensis* might also of Palaearctic origin. Some species seem to have a mainly Mediterranean distribution like *E. fluviatilis*, *E. setosus*, *E. pannonicus*, and *E. trochanteratus* (sometimes with occurrence in Central Europe and/or Central Asia). The Mediterranean fauna is however scarcely known as indicated in the introduction. *E. confusoides* is the only species with a clearly Oriental affinity, being mostly known from Asia (under the junior synonym of *E. lini*) and some of the islands in the Indian Ocean. No Afrotropical affinities could be detected for this genus. However, again this could be because of the fact that no recent revisions exist of this genus for that region.

The only genus with clearly Afrotropical links is *Tomosvaryella*. *T. jubata*, *T. inopinata*, *T. sedomensis*, and *T. nodosa* all have a close relationship with species from mainland Africa. The Palaearctic element is however still predominant with *T. sylvatica*, *T. geniculata*, and *T. minima* being widespread species in Europe and *T. frontata*, *T. mutata*, *T. helwanensis*, and *T. nigronitida* having a Mediterranean distribution (again sometimes with occurrence in Central Europe). The *T. argyrata* species group and the *T. kuthyi* complex also seem to be related to the Palaearctic fauna and/or the Irano-Turanian fauna.

The only cosmopolitan species found among the Pipunculidae of Israel and the Sinai is *T. subvirescens* which is mentioned from almost all zoogeographical regions. The same is also true for *Chalarus spurius* but some of these identifications seem to be doubtful and should be checked first, as mentioned by Jervis (1992).

Some common genera from the Palaearctic region seem to be absent in Israel, like *Dorylomorpha* and *Pipunculus*. This can be explained by the different habitat preference. Representatives of the genus *Dorylomorpha* for example seem to prefer more forested and humid or relatively cooler habitats like meadows, birch or oak forests, swamps, etc. (cfr Albrecht 1990). This also applies for most of the *Cephalops* species in Europe. The predominance of *Tomosvaryella* species can be explained because of their preference for more xerophyllic conditions.

Most species seem to occur in the summer months. Species like *T. kuthyi*, *T. freidbergi*, *E. ruralis*, *E. fluviatilis*, and *E. imitator* seem to have a single peak period between the months of May and August. *E. obliquus* occurs somewhat earlier (March till June). Grootaert (1993) noticed a pronounced shift of occurrence for *Platypalpus* spp. (Hybotidae) to the cooler winter months in the Mediterranean region, compared to abundance of related species during the summer months in western Europe. Such a drastic seasonal shift could however not be detected for the pipunculid species here, although species found in both areas do not necessarily seem to co-occur or show the same modality. *T. kuthyi* for example is a bivoltine species in Belgium with peaks in June and August (De Meyer & De Bruyn 1989). Here, only one peak was detected around June. The same more or less applies to *E. obliquus* which occurs earlier in Israel. Some species, like *T. tecta* and *E. confusoides* seem to occur generally in the cooler months of late autumn or winter. For these however, no related species occur in Europe as mentioned above. The phenological data are in general too preliminary to make any definite conclusions.

Acknowledgments

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